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FAILURES IN THE TREATMENT OF BACTERIAL ENDOCARDITIS

— CRAIGE

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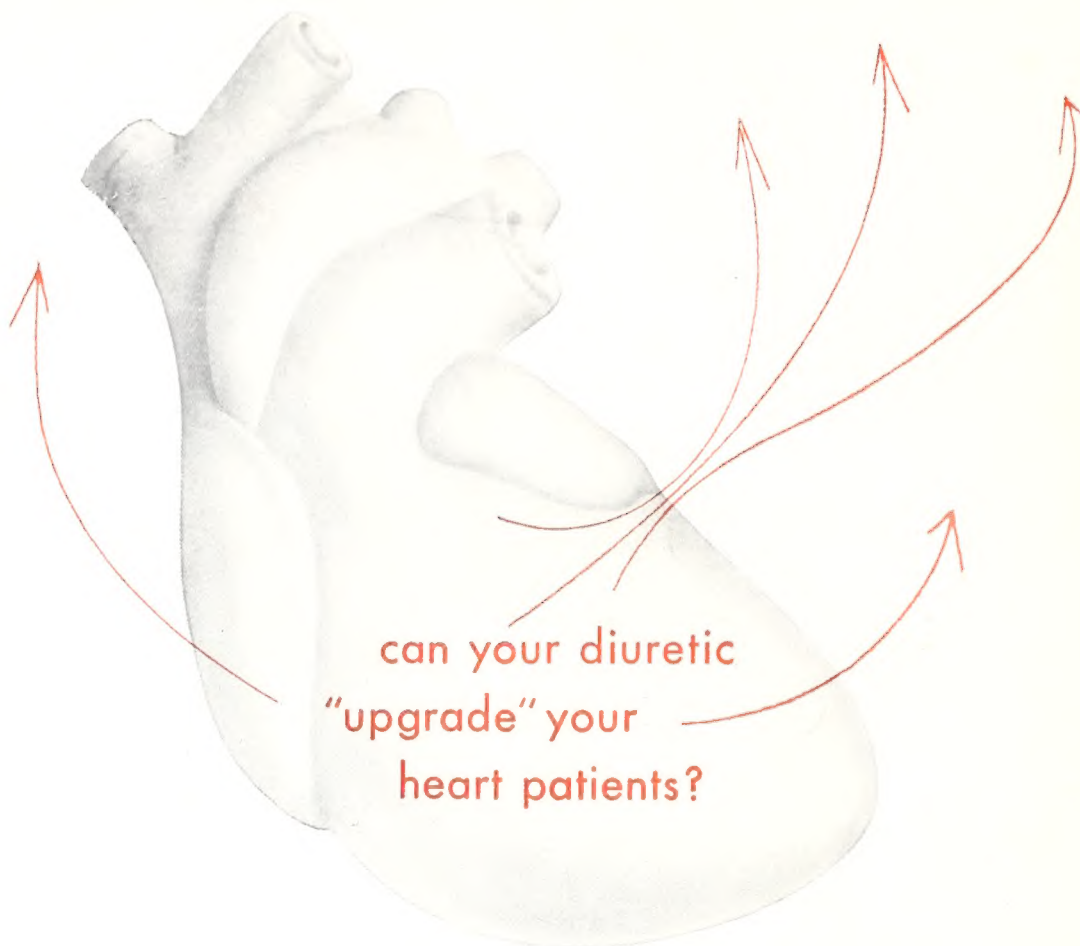
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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 17

JANUARY, 1956

NUMBER 1

Failures in the Treatment of Bacterial Endocarditis

ERNEST CRAIGE, M.D.

CHAPEL HILL

The past 10 years have seen the appearance of penicillin and other antibiotics capable of effecting a cure in bacterial endocarditis. It has been interesting to observe, however, that the mortality rate in subacute bacterial endocarditis in series from several large hospitals remains about 30 per cent. This fact is somewhat discouraging since, in the test tube at least, most of the organisms recovered on blood culture are moderately sensitive to penicillin.

One of the reasons for a fatal result is the lack of a diagnosis, or a diagnosis made too late. If one waits for all the classic features of the disease—the clubbed fingers, enlarged spleen, Osler's nodes on the finger tips, splinter hemorrhages in the nail beds, petechiae in the conjunctivae, and so forth—the case may be far advanced. Irreversible destructive changes may have taken place in the heart valves, and even if a bacteriologic cure can be obtained, the victory is short-lived since the heart may quickly fail because of a tattered or perforated valve. An example of the difficulty of diagnosis can be seen in a clinicopathologic conference published recently in the *New England Journal of Medicine*⁽¹⁾. The patient was an elderly gentleman who came to the hospital with a stiff neck and a fever. During the course of his studies it was found that he had a heart murmur of calcific aortic disease, clubbed fingers, blood cells in the urine and spinal fluid. The illness progressed rapidly, and in two weeks the patient died of bacterial endocarditis without benefit of diagnosis or treatment for this

disease. This unfortunate error can be avoided by considering bacterial endocarditis whenever there is a fever lasting more than a week in the presence of a heart murmur. Obviously many other conditions can cause such a combination, but if we remember to think of subacute bacterial endocarditis when there is a prolonged fever plus a murmur, it may be possible to obtain blood cultures and confirm the diagnosis.

Besides difficulties in diagnosis, we lose some cases of bacterial endocarditis because of the peculiar pathologic features of the disease. The vicious effect on a heart valve, as well as the problems arising from a mixed infection with unusual organisms resistant to penicillin, is illustrated in the following case.

Case Report

The patient was a 30 year old Negro man. He had no previous history of rheumatic fever but had been rejected for military service 10 years previously. In April, 1955, he began to have shortness of breath, orthopnea, and ankle edema. A sudden onset of paralysis on the right side of the body brought him to the hospital in his community. He was found to be severely ill. The blood pressure was 150 systolic, 0 diastolic. There was clubbing of the fingers, but no petechiae could be found. The heart was enlarged to the anterior axillary line on the left. Loud aortic systolic and diastolic murmurs as well as a presystolic apical murmur could be heard. Peripheral signs of aortic regurgitation were present and included a Corrigan's pulse and pistol-shot sounds over the femoral artery. There was flaccid paralysis of the right arm and leg. Routine blood studies were within normal limits, as was the urinalysis.

Although blood cultures were negative, the patient was suspected of having subacute bacterial endocarditis engrafted on an aortic valve deformed by old rheumatic heart disease. Mitral stenosis was also suspected. The paralysis was attributed to a cerebral embolus. He was treated for 21 days with

Read before the Section on Practice of Medicine, Medical Society of the State of North Carolina, Pinehurst, May 3, 1955.

From the Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, North Carolina.

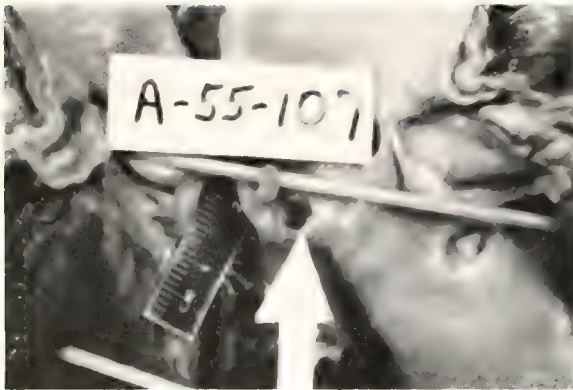


Fig. 1. Perforation of one of the cusps of the valve. The arrow points to the perforation. On the right a small aneurysm into the interventricular septum can be seen.

penicillin, 10 million units, and 2 Gm. of streptomycin daily, and made a satisfactory improvement. On discharge there was no sign of congestive failure, but the flaccid paralysis and signs of severe valvular disease remained. A poor prognosis was anticipated in view of the severe aortic disease.

Two months later the patient again manifested symptoms of congestive failure. He was admitted to the North Carolina Memorial Hospital. He was orthopneic and rapidly went into acute pulmonary edema. An electrocardiogram gave evidence of anterior and posterior myocardial infarctions. In spite of rapid digitalization and the use of oxygen, morphine, and tourniquets, his condition deteriorated and he died after 24 hours. Several blood cultures were obtained before death, but these were later reported to show no growth.

At autopsy there was massive edema of the lungs, with a red infarct in the left upper lobe. The heart was hypertrophied and dilated predominantly on the left side, weighing 725 Gm. There were old as well as fresh ischemic infarcts of the left ventricle. The cusps of the aortic valve were thickened and fibrotic, and had vegetations extending from their edges. The vegetations on microscopic examination proved to contain gram-negative bacilli, and cultures of blood from the heart were sterile. Cultures made from the vegetations, however, yielded two species of gram-negative bacilli. On the basis of pigment production and biochemical reactions, one of these organisms was classified as *Bacterium anitratum*, the other as a species of the genus *Flavobacterium*. The posterior aortic valve cusp had a large healed defect approximately 1 cm. in diameter. (fig. 1.) Just below this defective cusp there was a blind diverticulum extending into the upper interventricular septum. The mitral valve was thickened but showed no conclusive evidence of rheumatic involvement. The brain revealed an area of necrosis of the left cerebral peduncle.

This case illustrates rapidly progressing

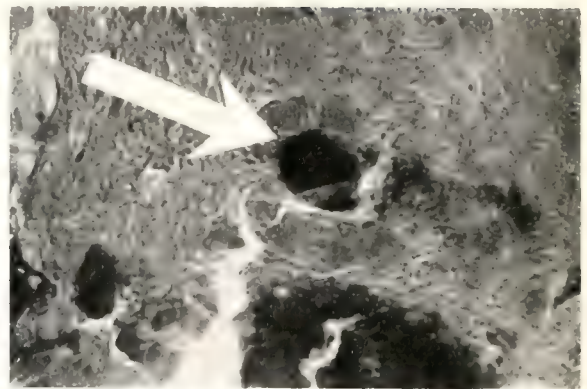


Fig. 2. Photomicrograph of a vegetation in bacterial endocarditis. The arrow points to a deeply embedded bacterial mass surrounded by fibrin which is undergoing early organization. The apparent channel beneath this mass of bacteria is an artifact. There is no vascularization of the vegetations and therefore no opportunity for antibiotics to reach the bacteria except by diffusion through the encasing fibrin.

congestive failure resulting from perforation of the aortic valve. The coronary circulation was, no doubt, seriously compromised, owing to the aortic regurgitation. Emboli from the vegetations led to coronary occlusion and myocardial infarction, accelerating the downhill course. That the original course of treatment was inadequate was demonstrated by the presence of gram-negative organisms of unusual types in the vegetations. Unfortunately these were never isolated in blood culture, a fact which enormously complicated the choice as well as the dose of antibiotics. The necrotic area in the brain accounted for the flaccid paralysis. An embolism from the vegetation was undoubtedly responsible. An unusual feature of this case was the aneurysm of the interventricular septum, possibly a congenital abnormality, or the result of earlier healed bacterial endocarditis.

The Need for Obtaining Positive Cultures

Figure 2, from another case, shows a group of vegetations of bacterial endocarditis growing on a heart valve. The bacteria in these vegetations are situated in the middle of the circulating blood with its cellular defenses, as well as the high concentration of the penicillin that has been injected. But the bacteria are practically invulnerable because of the heavy avascular coat of fibrin and platelets. It is quite difficult for

polymorphonuclear cells from the host to penetrate this shell, and apparently for penicillin also. For blood cultures to become positive, obviously some of these bacteria have to break free from this encasement and drift through the blood stream. It is apparent, then, that in indolent cases where considerable healing is already taking place, blood cultures will only intermittently be positive. We need, however, to get the information afforded by the positive culture in order to know with what organism we are dealing. Otherwise, the problem is like that of a boxer entering the ring blindfolded to fight an opponent of unknown size and resistance. The inadequacy of treatment where no organisms can be isolated in blood cultures is illustrated in the case report above. The ordinarily used antibiotics were ineffective, and viable organisms of unusual and mixed types were cultured from the vegetations. If, on the other hand, we can get positive cultures, the bacteria can often be studied in the test tube to determine their sensitivity to the various antibiotics. Then a dose can be selected that has a fair possibility of success.

The Importance of Adequate Dosage Levels

In this disease the host's ordinary mechanisms of resisting infection are not effective. The bacteria, as mentioned above, are more or less inaccessible to the white blood cells. In pneumonia and many other ordinary infections, the antibiotic has only to inhibit reproduction of the bacteria, leaving the rest to the polymorphonuclear cells of the host.⁽²⁾ In bacterial endocarditis, however, we need to use antibiotics in *killing doses*. This means high dosage levels. About 90 per cent of the strains of *Streptococcus viridans* that ordinarily cause bacterial endocarditis can be killed with doses of penicillin ranging from 1 to 2 million units daily. The more resistant organisms may take 10 million units a day, re-enforced by the synergistic effect of streptomycin. The use of Benemid, 2 Gm. daily, will enhance the blood level of penicillin. Some have advocated massive doses given during an abbreviated period of two weeks⁽³⁾. It seems, however, that a considerable period of contact with penicillin is necessary to effect a cure, and probably four or five weeks of treatment is safer than two weeks. Inter-

mittent intramuscular injection of the aqueous penicillin is favored by most authorities, since high blood level peaks can be obtained best by this method.

The studies of Eagle⁽⁴⁾ have been helpful in determining the route of administration and the timing. He has shown that time-dose relationships are extremely important in dealing with organisms that multiply rapidly, such as the streptococcus. If the doses are too far apart, the bacteria will recover partially from one injection and begin reproducing before the effects of the next can be felt. With slowly multiplying organisms such as treponema, a widely spaced dosage schedule is satisfactory. In subacute bacterial endocarditis, however, a schedule of injections at three or four hour intervals might be best. The intermittent injections of aqueous penicillin provide extremely high blood levels capable of penetrating into the mass of bacteria in the vegetations. The lower, steady blood levels afforded by procaine penicillin given at, say, 12 hour intervals may not be adequate for the more resistant types of bacteria often encountered in this disease.

Finally, some failures occur because, even though the infection is cured, there has been irreparable damage to the brain or kidneys by emboli or to the heart valves by the destructive action of the bacteria and the cicatricial process of healing. This fact again emphasizes the necessity for earlier diagnosis if we are ever to improve still further the salvage rate in this serious infection.

The author wishes to acknowledge the help of Dr. John B. Graham of the Department of Pathology, and Dr. William J. Cromartie, U. N. C. School of Medicine, in the preparation of this paper.

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The Prevention and Treatment Of Acute Rheumatic Fever

JEROME S. HARRIS, M.D.

DURHAM

Present day concepts of the prevention and treatment of acute rheumatic fever⁽¹⁾ are based on the principles and assumptions (1) that an infection with any type (with possibly two exceptions) of Group A beta hemolytic streptococci *always* is the inciting agent of rheumatic fever; (2) that approximately 3 per cent of the population will respond, after a latent asymptomatic period, to such an infection by the frequently vague clinical syndrome of rheumatic fever; (3) that this strange proclivity is in part dependent on age and heredity; (4) that streptococci need not be present during the active phase of rheumatic fever, and (5) that one attack predisposes to a similar response to infections with other Group A streptococci.

Ignorance obscures the exact etiology of rheumatic fever, its pathogenesis, the mechanism of continued activity, and the reason for recovery. There are no laboratory tests analogous to the Wassermann test which specifically indicate the presence of rheumatic fever, and there is no specific means of therapy. Bluntly, we know the firebrand, but we do not know how he starts his fires, nor to a large extent which buildings are inflammable (unless they have previously burned), nor how to put out the fires. We frequently do not even know which buildings are burning. Because of these facts, the methods and aims of prevention are quite specific, while diagnosis and therapy are controversial, difficult, and nonspecific.

Prevention

At present preventive measures are directed solely against the incitant streptococcal infections—either by treating these infections so as to lower the incidence of subsequent rheumatic fever or, where a particular susceptibility exists, by maintaining

continuous prophylaxis so as to minimize the chances of a streptococcal infection.

Detection and treatment of streptococcal infection

In the first method, success depends upon the ability to find and diagnose streptococcal infections as well as upon the efficacy of treatment. This is easier said than done, particularly since 40 per cent of the patients with rheumatic fever cannot give a history of a manifest streptococcal infection. Such infections may not show the textbook picture of a sudden febrile illness with sore throat, "beefy" redness of the pharynx, exudate over the tonsils, tender cervical adenitis and leukocytosis, and bring the patient to the physician with sore throat, headache, abnormal pain, vomiting, otitis or sinusitis, as popularly believed. The younger the child, the more mild and chronic is the infection—persistent nasopharyngitis with rhinorrhea, chronic impetigo, indolent suppurative processes, and even fever of unknown origin. (It is fortunate that these young infants also show a feeble immune response and a low tendency to rheumatic fever). We have noted these milder manifestations when we have deliberately searched for them in the younger siblings of a child with proven streptococcal sore throat. The chronic drippy nose, the slightly reddened "pediatric" throat, the cranky child with a low grade fever and negative physical examination may be infected with streptococci. In dealing with rheumatic fever and nephritis, we have learned that streptococcal infections are family and even community affairs and that infections may recur unless the entire family is treated. Carriers in the community present an even greater problem, which we will discuss later.

From these considerations, it is obvious that treatment of manifest streptococcus infections (even if effective in preventing rheumatic fever) cannot eradicate the disease from a population and should not be

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From the Department of Pediatrics, Duke University School of Medicine, Durham, North Carolina.

relied upon in a particularly susceptible group.

Nevertheless, adequate treatment of an acute streptococcal infection can prevent that particular infection from precipitating rheumatic fever. It is generally recognized that penicillin is the drug of choice, that the "mycins" may be used in penicillin-sensitive patients, and that the sulfa drugs are worthless, even though they may "cure" the patient. It may not be so widely recognized that treatment *must* be continued for a minimum of 10 days in order to eradicate the streptococci and prevent rheumatic fever. Benzathine penicillin G in a single dose of 600,000 to 1,200,000 units given intramuscularly, procaine penicillin with aluminium monostearate in oil, in daily doses of 300,000 to 600,000 units for three days, and procaine penicillin aqueous suspension in daily doses of 300,000 units given intramuscularly for 10 days are effective. We have occasionally had failures in eradicating *B. hemolytic streptococci* with oral penicillin in the recommended dosage of 750,000 units daily for 10 days. The futility of short courses of penicillin is emphasized by Rhoad's finding that streptococci can be cultured from the ground-up tonsils of 31 per cent of individuals receiving 600,000 to 800,000 units of procaine penicillin intramuscularly on the day preceding and the day of a tonsillectomy—even when no streptococci had been found on routine throat culture⁽²⁾.

The choice of penicillin preparation will vary according to the circumstances and individual patient. The chief difficulties are (1) that benzathine penicillin injections are painful and the child might not return at the next infection, and (2) that it is hard to continue medication for 10 days when the child appears completely cured in a day or two. He feels well and the parents may not understand why treatment must be continued. Nevertheless if therapy is stopped, the organisms may still be present and precipitate rheumatic fever.

It is interesting and most fortunate that streptococci have to be present for several days in order to induce rheumatic fever. A delay of 24 to 48 hours in initiating therapy (long enough to get throat cultures and confirm the diagnosis if necessary) does not appreciably increase the incidence of rheu-

matic fever. Rammelkamp has shown that a full course of penicillin started nine days after the onset of a streptococcal infection will prevent rheumatic fever in 85 per cent of the cases even though the patient is perfectly well clinically when the treatment is begun⁽³⁾.

Ordinarily, however, treatment should be given as soon as the diagnosis is established so as to prevent the spread of infection in the family and elsewhere. Breese found that early treatment can markedly decrease incidence of secondary infections from the 23 per cent ordinarily found in siblings⁽⁴⁾.

The magnitude of the problem of streptococcal infections can be estimated by noting the prevalence of these organisms. Rantz⁽⁵⁾ stated that the organisms are carried in the throats of 40 per cent of children from 4 to 14 years of age, and of 27 to 28 per cent of those under 4 years, and from 16 to 25 years. Each child has a greater than fifty-fifty chance of becoming infected yearly and usually has several attacks before leaving childhood. Rhoads recently demonstrated that *B. hemolytic streptococci* could be cultured from the ground-up tonsils of 57 per cent of patients undergoing tonsillectomy, only 28 per cent of whom showed streptococci on ordinary throat culture prior to operation.

Community programs

Because of the prevalence and rapid spread of streptococci in an area, the recently developed community programs for this type of prophylaxis against rheumatic fever are exciting great interest. Since inadequate housing, unhygienic conditions, overcrowding, and slums foster the spread of streptococci, the first step is to provide adequate housing and endeavor to raise the standard of living. Then, following an intensive educational program, an attempt is made to detect and treat streptococcal infections in school children. The children report to the teacher for sore throats, colds, nasal discharges, fever and headache. The school nurse takes a throat culture which is brought to a central agency—usually the local hospital. In other areas the cultures are incubated in the school and examined for hemolysis the next day by the science teacher. If positive, the culture is sent to the hospital for confirmation and the child is sent to his physician or to the health de-

partment for therapy. If school nurses are already available, the cost of the program is not excessive — approximately \$100 per year per school.

These programs are excellent, not only because they insure the prompt treatment of acute infections, but also because they prevent the spread of the infection. This spread through schools and institutions may be very rapid and extensive. Two years ago we became interested when a patient with nephritis (carrying Type 12, Group A streptococci in his throat) was found in a small hospital for spastic children. Throat cultures showed that 42 per cent of the children in that hospital were carrying the same organism. Incidentally, 5 of the 45 children showed definite evidence of nephritis, while 20 per cent showed albuminuria — perhaps indicative of a very mild renal lesion. Similar experiences in schools have been reported by others. The school program may not only avert the frank infections which reach the physician for therapy, but may also decrease the number of asymptomatic infections—which cause 40 per cent of all cases of rheumatic fever.

Continuous therapy

The second plan of rheumatic fever prophylaxis is the continuous treatment of unusually susceptible individuals with sulfadiazine or penicillin. Unfortunately, the only test for susceptibility of rheumatic fever is the history of a previous attack in the patient—or in his immediate family. Individuals who have recovered from rheumatic fever have a 20 to 40 per cent chance of a recurrence within one year, and gradually decreasing susceptibility thereafter. Since susceptibility to rheumatic fever may be a recessive trait, the child of parents who have had rheumatic fever has a greatly increased risk of contracting the disease. Perhaps these children should also receive continuous prophylactic therapy.

A great stumbling block in deciding when to start continuous therapy is the absence of a specific test for rheumatic fever. The decision must be based on a most careful evaluation of the patient and elimination of other conditions which may simulate rheumatic fever. It is not in our province here to discuss the diagnosis of rheumatic fever, but I can stress the fact that a positive diagnosis means at least five years to a life-

time of continuous medication at enormous expense. Further, an incorrect positive diagnosis may do as much harm in creating invalidism as would an incorrect negative diagnosis in failing to prevent it.

Since patients may harbor streptococci, continuous prophylactic therapy should be begun only after a full 10-day course as outlined above for acute infections. The methods recommended for continuous prophylaxis are well known: sulfadiazine in daily doses of 1.0 Gm.; 200,000 units of penicillin given orally one half hour before breakfast; intramuscular injections of benzathine penicillin G, 1,200,000 units given monthly throughout the year. If patients are sensitive to these drugs, one of the "mycins" may be used, but their efficacy is still under investigation. Therapy should be continued throughout childhood and for at least five years following an acute attack. Probably it should be continued for life.

The choice of drug and preparation will depend upon circumstances and the individual patient. Each method has its advantages. Injections of benzathine penicillin are certain with regard to administration, but are painful and cause reactions in 5 per cent of the patients. Sulfadiazine and oral penicillin cause less painful reactions, but may not be taken regularly by a forgetful patient. We have recently found a number of B hemolytic streptococci in patients taking oral penicillin or sulfadiazine in the recommended doses, but these have not been followed by recurrences of rheumatic fever. They will be studied to determine their group and type, but they caused a clinically severe sore throat in 2 patients and presumably were Group A. Many of these children have come from families having a high percentage of carriers.

Treatment

The actual treatment of rheumatic fever is much less satisfactory and controversial. The happiest situation, and one that is relatively frequent, is to find that the child does not have the disease at all and that the murmurs are functional.

Specific therapy

The child who contracts rheumatic fever should be considered to harbor streptococci (even if cultures are negative) as long as he has not received a full, intensive 10-day

course of penicillin. Rammelkamp found that streptococci could be cultured from the throats of 55 per cent of both rheumatic and non-rheumatic patients eight weeks after the occurrence of a streptococcal sore throat. If Rhoad's statistics on the relative incidence of positive throat and positive tonsillar cultures can be applied to these figures, all the patients must be carrying streptococci. For this reason, the first step in treating active rheumatic fever is to give a full, intensive course of penicillin (making sure to eliminate the diagnosis of subacute bacterial endocarditis first) and then to begin continuous prophylactic therapy.

General therapy

Nonspecific therapy such as bed rest, avoidance of infections, adequate diet, vitamins (especially C, and also K if salicylates are given) is well known. Although early ambulation was not found to exert an adverse influence in several adult studies, I believe that the child should have complete bed rest until all evidences of activity disappear. Perhaps this is better stated thus: the child should have as much rest as possible, since frequently he will be far more active and difficult to manage on complete bed rest than with television, porch, and meal privileges. Digitalis is indicated for incipient or frank congestive failure, but rarely is it very effective in childhood, when such a course indicates either active myocarditis or bacterial endocarditis.

Other agents

A long argument has raged as to whether salicylates in small or even toxic doses has any effect on the rheumatic process other than symptomatic. A similar controversy is now taking place over the effect of cortisone and ACTH. My own feeling has been that the three drugs are approximately equivalent and do not have any basic curative effect on the process. We have seen myocarditis and pericarditis progress under all of the types of therapy. Since the joint English-American study of 497 cases has just been published in recent issues of *Circulation* and the *British Medical Journal*, per-

haps it would be best to outline their conclusions⁽⁶⁾.

1. There appeared to be no relationship between the treatment given and the behavior of congestive failure and pericarditis.

2. There was more frequently an increase in heart size in each of the hormone groups as compared with the aspirin group. At the one year follow-up examination there was no appreciable difference between the three groups.

3. No consistent difference in the behavior of murmurs present at the start of treatment was noted except that the soft apical systolic murmurs disappeared more rapidly in hormone treated groups. At the end of one year, however, no significant difference remained.

4. The P-R intervals decreased more frequently and more rapidly in the hormone groups than in the aspirin group. This difference between the groups lessened during the observation period and was absent at nine weeks and one year.

5. At one year, the proportion with residual cardiac damage was similar in the three treatment groups. A final determination of cardiac status must await results of a prolonged follow-up.

It is apparent that this study presents no evidence that rheumatic fever in children can be uniformly terminated by any of the three agents. There is evidence that hormone treatment results in more prompt control of certain acute manifestations, but this more rapid disappearance is balanced by a greater tendency for them to reappear for a limited period of time at the end of treatment. Treatment with the hormones also leads to the more rapid disappearance of nodules and of soft apical systolic murmurs. At the end of one year, however, it is clear that there was no significant difference between the treatment groups in the status of the heart.

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The Analysis of the Carotid Artery Syndrome

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In recent years attention has been focused on the importance of occlusion of the carotid artery in the neck, producing a variety of symptoms not infrequently seen. Hunt⁽¹⁾ early called attention to the significance of this lesion and urged the routine examination of these vessels in the neck by palpation.

As recently stated by Fisher⁽²⁾, the cases of carotid occlusion diagnosed by angiography in neurosurgical clinics presented atypical findings. In this presentation it is our purpose to clarify the diagnostic features of carotid artery occlusion as presented in the cases observed in this clinic and those reported in the literature.

Historical

Moniz⁽³⁾ in 1927 first reported on the use of angiography and during the next 10 years performed 537 angiograms⁽⁴⁾, of which four demonstrated thrombosis of the internal carotid artery, an incidence of 0.7 per cent. The 4 cases had been clinically diagnosed as brain tumors, and were the first recorded cases of internal carotid artery occlusion proven by angiography. Subsequently many authors have reported a large number of cases⁽⁵⁾.

The typical syndrome presented by spontaneous occlusion of the internal carotid artery as recognized in the medical texts was reviewed by King and Langworthy⁽⁶⁾. It would be a routine matter to diagnose a case marked by blindness, aphasia, contralateral hemiplegia and hemi-anesthesia, and contralateral temporal hemianopia.

Cushing⁽⁷⁾ published one of the earliest reports of a case with occlusion of the internal carotid artery presenting atypical findings, and the diagnosis remained obscure until a postmortem examination was performed. King⁽⁸⁾ reported a patient presenting the symptoms, clinical findings, and roentgen evidence (shift of pineal and lat-

eral ventricle shift) of a space-occupying lesion. At craniotomy massive infarction and edema of the cerebral hemisphere was noted, and angiography revealed an occlusion of the internal carotid artery at the cavernous sinus on the ipsilateral side. Gurdjian and Webster⁽⁹⁾ recorded 30 cases of internal carotid occlusion with the commonly found symptoms and signs. Elvidge and Werner⁽¹⁰⁾ attempted to differentiate by pneumoencephalography, electroencephalography, and angiography thrombosis of the internal carotid artery as compared with one of its branches. They collected 10 cases, 6 with internal carotid occlusion and 4 with middle cerebral occlusion. They concluded that the only physical sign indicative of internal carotid artery occlusion is an absent or markedly diminished pulsation in the neck. They relied on angiograms to substantiate the diagnosis.

Johnson and Walker⁽¹¹⁾, in a review of the literature, collected 101 cases of internal carotid occlusion proven by angiogram or pathologic dissection, and added 6 cases of their own. The signs and symptoms of the 107 cases were tabulated as follows:

	<i>Per Cent</i>
Hemiplegia	80
Aphasia	60
Headache	50
Paresthesia	20
Mental deterioration	15

Ophthalmologic findings were relatively infrequent, with 5 per cent of the patients reporting transient blindness, 13 per cent showing homonymous hemianopsia, and 11 per cent having optic atrophy and visual loss. Onset of symptoms was found to be sudden apoplexy in 35 per cent of the cases, with slow progression in 25 per cent, and transient attacks of paresthesia, weakness and decreased vision in 40 per cent. The over-all distribution was 87 males and 20 females; the left side was involved 65 times and the right side 42 times.

Many writers — Poppen⁽¹²⁾, Boldrey⁽¹³⁾, and Homans⁽¹⁴⁾, to mention only a few — have reported ligation of the internal carotid artery in the neck. Poppen⁽¹⁵⁾ reported 143 ligations of the internal carotid artery, in 8 of which hemiplegia developed within two hours to eight days.

Fisher⁽²⁾ analyzed the neck vessels in 432 consecutive autopsies and found that 28 of the subjects had complete occlusion of one or both carotid arteries and 13 showed very severe narrowing of the arterial lumen. Thus carotid artery abnormalities were found 41 times, an incidence that was found to be correlated with that of cerebral hemorrhage and hypertensive arteriosclerotic vascular disease in his series. An analysis of his figures revealed 7 cases with unilateral occlusion without symptoms, 18 with unilateral occlusion and hemiplegia, 8 with bilateral occlusion and dementia, 6 with bilateral occlusion and bilateral neurologic signs and coma, and 5 with bilateral occlusion and dementia.

As a result of this pathologic study he found variation in regard to the site of occlusion, extent of thrombosis, efficiency of collateral circulation, and extent of cerebral softening. It is stated that atherosclerosis is the prime cause of carotid occlusion, and this condition manifests itself in one of three ways: (1) large plaques form in the carotid sinus and may enlarge to occlude the lumen; (2) a superimposed thrombus may form on the plaque itself; or (3) hemorrhage into the plaque may occlude the vessel. In his series the carotid sinus was the most frequent site of internal carotid occlusion, owing to its predilection for atherosclerosis. This atherosclerosis was typical in appearance, similar to that in other vessels, and absent in the internal carotid from the sinus to the base of the skull, even though the sinus showed marked atherosclerosis. Fisher adequately demonstrated the value of routine pathologic evaluation of the arterial vessels in the neck.

Thomson⁽¹⁶⁾ reviewed 1,800 angiograms and found 22 cases of carotid thrombosis, an incidence of 1.2 per cent. The site of the block was at the origin of the internal carotid or its proximal 3 cm. in 16 cases. One case was an occlusion of the common carotid and 5 cases were associated with a block in the carotid siphon. The clinical diagnosis

was substantiated in 33 per cent of the cases.

Considering the data presented on the previous pages, it becomes apparent that the typical signs of internal carotid artery occlusion as listed in the medical texts are frequently absent and that some spontaneous occlusions are asymptomatic^(2,12).

Case Reports

In the routine performance of 349 angiograms as diagnostic procedures in the past four years, we have made the diagnosis of thrombosis of the internal carotid artery in 9 cases, an incidence of 2.3 per cent. In 5 of the cases the common carotid artery bifurcation was dissected to perform an open angiogram, and percutaneous angiograms were done in 4 cases. In only 2 cases was the diagnosis of occlusion of the internal carotid artery suspected on the basis of the history and clinical findings.

Case 1

A 61 year old man experienced a sudden onset of left frontal headache, sensation of the mouth being pulled to the right, diminished vision in the left eye, and right-sided weakness of two weeks' duration. Six months previously he had had a similar episode of three days' duration; a lumbar puncture done then was normal.

The blood pressure was 130 systolic, 70 diastolic. The only positive finding by neurologic examination was a lower nasal quadrant defect on the left. A lumbar puncture revealed normal pressure, 85 mg. of protein per 100 cc., and a negative test for syphilis. A left open Throatrast arteriogram revealed a cord-like nonpulsating left external carotid artery.

Case 2

The patient was a 36 year old woman who 10 days prior to admission had a sudden onset of weakness of the left arm which progressed to paralysis of the arm, paresis in the left leg, and coma.

Physical examination: The blood pressure was 200 systolic, 100 diastolic, pulse 100, respirations 28. The patient responded to painful stimuli, moving only the right extremities. The right pupil was larger than the left, and there was slight edema of the disk margins and distended retinal veins. There was left facial flattening, hyper-active deep tendon reflexes on the left, and bilateral extensor plantar responses. A ventriculogram revealed shifting of the left ventricle to the right and a depressed left temporal horn. A left closed Throatrast arteriogram revealed non-filling of the internal carotid on three separate injections. A large left temporoparietal bone flap was turned down, and widening of the sensory motor strip with necrosis of the entire left hemisphere was noted. The patient expired shortly

after the operation; a postmortem examination was not obtained. The diagnosis was thrombosis of the left internal carotid artery, with infarction of the left cerebral hemisphere.

Case 3

A 59 year old man who awoke with vomiting noted a staggering gait and left hemiplegia. Four and one-half months previously a melanosisarcoma had been removed from the right groin.

The blood pressure was 110 systolic, 70 diastolic, and the pulse was regular. A general physical examination revealed no local recurrence of the sarcoma. Neurologic examination revealed the patient to be slightly confused and restless, with flaccid left hemiplegia and diminished deep tendon reflexes on the left. Roentgenograms of the head and chest were not remarkable, and the pineal body was in the mid-line. The patient improved over the ensuing three days and showed some recovery of function on the left. Lumbar puncture revealed a pressure of 235 mm., and yellow spinal fluid.

The patient's condition deteriorated over the next six hours, and respirations ceased. Manual respiration by an endotracheal tube was performed, while bilateral closed carotid arteriograms were done, using 35 per cent Diodrast. The internal carotid on the right was filled to the level of the anterior clinoid, but no dye was visualized beyond that point. The internal carotid artery on the left filled to the base of the skull. These findings were consistent on three separate bilateral injections. The patient expired 24 hours later; a postmortem examination was not obtained. Diagnosis: bilateral internal carotid artery occlusion.

Case 4

The patient was a 39 year old man who seven weeks prior to admission had had a generalized convulsive seizure with 45 minutes of unconsciousness. One year prior to admission he had had sudden right hemiplegia and unconsciousness. The patient improved during the year before admission, regaining speech and movements in the right extremities.

The blood pressure was 130 systolic, 70 diastolic, and the pulse was 76 and regular. The patient was alert and well oriented, but had a motor aphasia. There was right lower facial weakness, spastic weakness of the right upper and lower extremities, and slightly decreased sensation on the right. The deep tendon reflexes were increased on the right and plantar response extensor. Lumbar puncture revealed pressure of 180 mm., 30 mg. of protein per 100 cc., a negative Pandy test, and a negative test for syphilis. An electroencephalogram was normal. An open arteriogram was attempted on the left, but the internal carotid artery was found to be a firm, nonpulsating strand of tissue. Diagnosis: thrombosis of the left internal carotid artery.

Case 5

A 64 year old man had had headaches of one

year's duration, with occasional dizziness, sudden blurring of vision, and thickness of the tongue. He had noted numbness, tingling, and loss of dexterity in the left upper extremity. The family physician had reported a definite personality change during the preceding eight months. There was a past history of mild hypertension.

The blood pressure was 170 systolic, 100 diastolic, and the pulse was regular. The general physical examination was not remarkable. Neurologic examination disclosed left facial weakness, clumsiness of the left upper extremity with normal motor power, increased deep tendon reflexes, and a 2 plus Hoffmann's reflex in the left upper extremity. A lumbar puncture revealed the pressure to be normal, 70 mg. of protein per 100 cc. and a negative test for syphilis. A right percutaneous angiogram revealed occlusion of the right internal carotid at the sella turcica. Diagnosis: thrombosis of the right internal carotid artery. Ventriculography six months later revealed no deformity or displacement, and the ventricles were twice normal size.

Case 6

A 33 year old woman one year prior to admission had struck her head on falling from bed. Unconsciousness, total aphasia, and right hemiplegia ensued. The patient recovered sufficiently to walk on crutches, having marked weakness of the right extremities, and was able to speak four words. She complained of frequent frontal headaches and diminished vision in the right eye.

Homonymous hemianopsia on the right, partial aphasia, paralysis of both right extremities, with extensor plantar response on the right, were noted. The left internal carotid pulsation was diminished. A lumbar puncture revealed the pressure to be normal, protein, 62 mg. per 100 cc., and a negative test for syphilis. Exploration of the left internal carotid artery in the neck revealed the artery to be a firm, nonpulsating strand of tissue. Diagnosis: thrombosis of the left internal carotid artery.

Case 7

A 55 year old man suddenly became unconscious, and right hemiplegia with aphasia ensued one year prior to admission. A head injury had rendered the patient unconscious at the age of 20, and he had had grand mal seizures since the age of 30, controlled by phenobarbital. A thorough evaluation had been made at the age of 45, with cortical atrophy noted by pneumoencephalogram.

The blood pressure was 180 systolic, 80 diastolic. The patient had aphasia, right hemiplegia, and increased deep tendon reflexes on the right. A lumbar puncture revealed a normal pressure, 79 mg. of protein per 100 cc., and a negative test for syphilis. A left percutaneous Thoratrast arteriogram revealed occlusion of the left internal carotid artery.

Case 8

A 41 year old man nine months prior to admission had noted drowsiness, vertigo, loss of motor

power and sensation in the left arm, with slurred speech and a generalized headache. The symptoms progressed to include paralysis of the left leg.

On physical examination the right internal carotid pulsation was found to be absent in the neck. There was left homonymous hemianopsia, left facial paralysis, paralysis of the left upper extremity, and paresis of the left lower extremity, with increased deep tendon reflexes, and diminished sensation on the left. A lumbar puncture revealed normal pressure, normal protein, and a negative test for syphilis. An exploration of the right carotid bifurcation revealed the internal carotid artery to be a firm, nonpulsating strand of tissue. There was pulsation of the external carotid vessels on the right.

Case 9

A 56 year old white man had noted dull aching, intermittent headache, transient clumsiness, and numbness of the right hand three months prior to the sudden onset of right hemiparesis, paresthesia beginning in the right hand and progressing to involve the right arm and leg, and partial aphasia. Three years previously he had had a coronary occlusion documented by electrocardiogram.

The blood pressure was 140 systolic, 85 diastolic, pulse 84, respiration 16. The general physical examination was not remarkable. Neurologic examination revealed a slight motor aphasia with right lower facial weakness, deviation of the tongue to the right, and right-sided hemiparesis. Deep tendon reflexes were hyperactive on the right, with a right extensor plantar response. A lumbar puncture revealed normal protein and pressure. An open carotid arteriogram revealed thrombosis of the left internal carotid artery 2 cm. distal to its origin, with visualization in the skull of the ophthalmic, anterior cerebral, and internal carotid arteries (fig. 1). There were opaque densities in the neck suggesting calcification of the carotid vessels.

Analysis of Data

In analyzing the data presented by these 9 cases (table 1), we find that the figures approximate those tabulated by Johnson and Walker⁽¹¹⁾. There were 7 males and 2 females, with ages varying from 33 to 64 years. Four patients were under 41 years of age. The left side was involved in 6 cases, the right in 2, and 1 case presented bilateral occlusion. Headache occurred in 5 cases, and various degrees of mental changes, ranging from slight personality change to coma, were observed in 6 cases. Paresthesias were noted by 4 patients, and eye signs were detected in 3 patients, 2 presenting homonymous hemianopsia and the other a lower nasal quadrantic defect. The most commonly associated symptoms occurring together in

Table 1
Analysis of Cases

Age in years	33-64	Eye signs or symptoms	33%
Sex		Absent carotid pulsations	22%
Males	7	Diagnosis of tumor	55%
Females	2	Diagnosis of occlusion	22%
Side		Pre-existing vascular disease	22%
Right	22%	Sudden onset of symptoms	66%
Left	66%	Transient episodes	33%
Bilateral	11%	Deaths	22%
Hemiplegia	77%		
Headache	55%		
Aphasia	77%		
Paresthesias	44%		
Mental deterioration	66%		
Site of occlusion			
Carotid sinus	55%		
Higher	44%		

5 patients were hemiplegia or hemiparesis, various degrees of aphasia when the lesion involved the dominant hemisphere, and varying depths of mental changes. The carotid pulsations were recorded in only 3 cases. In 2 cases the internal carotid pulsation on the affected side was definitely absent, and the occlusion was substantiated by open arteriogram. In the other recorded palpation, the pulse on the affected side was thought to be slightly decreased as compared with the opposite side. The external method for palpation was used here. Mild hypertension in 1 case was the only evidence of previously existing vascular disease.

As of this writing, 2 patients have expired and postmortem examinations were not obtained. In this series the incidence of eye signs was slightly above that of other reported series^(11,17). Eye signs are not common with internal carotid occlusion, whereas they are frequent with common carotid artery occlusion, resulting from the obliteration of the collateral blood supply through the external carotid circulation, and the ophthalmic artery, to the internal carotid at the level of the anterior clinoid process (fig. 1).

Filling of the internal carotid artery in the skull by retrograde external carotid artery anastomoses with the ophthalmic artery as seen in case 9 has been previously reported⁽¹⁸⁾.

The diagnosis in case 3 was made after three separate bilateral injections of the internal carotid arteries. This is highly suggestive of internal carotid artery occlusion, though not conclusive, since we have seen radiographic occlusion previously in coma-

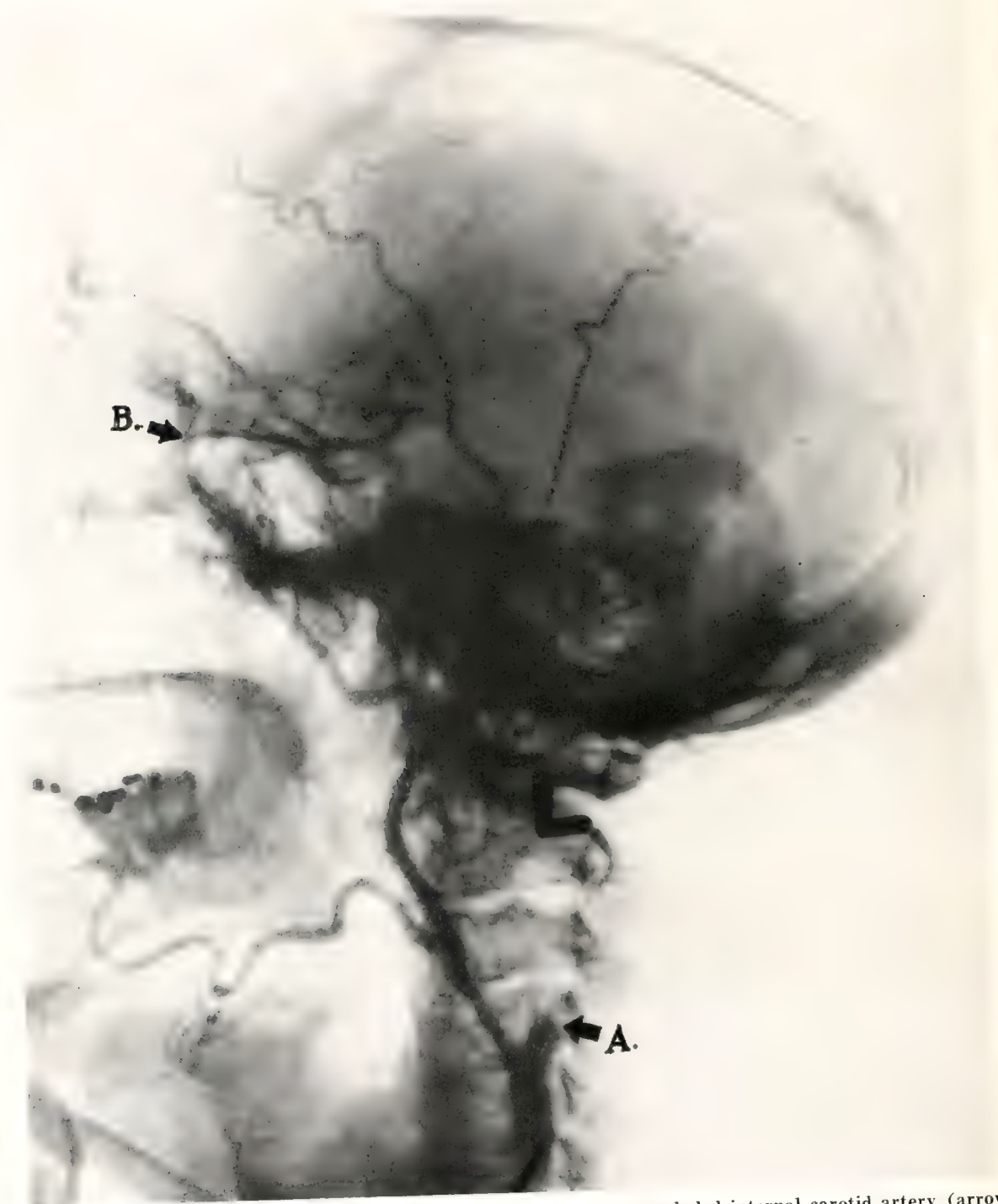


Fig. 1. Angiogram demonstrating needle in common carotid artery, occluded internal carotid artery (arrow A), large external carotid system, and retrograde filling of the internal carotid artery via the ophthalmic artery (arrow B).

tose patients in whom there was no anatomic occlusion. Thus the reasoning for exploration in case 2 after angiogram revealed non-filling of the internal carotid artery.

At present we are using 10 by 12 inch films for roentgenograms in order to include the needle in the neck, to rule out dye extravasation, and to detect any calcification of the carotid vessels in the neck.

Comment

We can conclude from this and other series^(5c,10,11) that the syndrome of occlusion of the internal carotid artery is not infrequent as once believed, and the clinical picture is highly variable⁽¹⁹⁾. It deserves a place in the differential diagnosis of patients presenting motor signs, ranging from slight transient weakness to hemiplegia, any degree of aphasia, and any mental aberrations varying from slight personality change to dementia or coma. Headache, paresthesias, or eye signs may or may not be associated with the other findings. Internal carotid arterial pulsations in the neck above the level of the hyoid bone should be routinely examined just as other evidence of arteriosclerotic vascular disease is sought. We have not routinely practiced the transpharyngeal method for detecting internal carotid artery pulsation. At least three advantages can be realized from the routine arterial palpation in the neck: the examiner will be constantly aware of the syndrome, establish normal variations, and establish the clinical diagnosis when the pulsation is absent or sufficiently decreased to arouse suspicion. Caution must be exercised in carotid palpation in older individuals with arteriosclerotic changes of severe degree.

We feel that surgical exploration of the carotid bifurcation, with the addition of angiography if necessary, is warranted in order to substantiate or determine the diagnosis. Frequently the internal carotid at the bifurcation is a thin firm strand filled with organized thrombus and there is no need for angiography (fig. 2); however, the site of occlusion may be higher in some cases⁽²⁾. In 5 of the cases in this series the occlusion was at the carotid sinus, 2 were occluded just beyond the sinus, and 2 were intracranial. The common site of the lesion is in the carotid bulb within the first 3 cm. of the bifurcation. It has been seen on numerous oc-



Fig. 2. Anatomic demonstration of common carotid artery bifurcation with aspirating needle in the internal carotid artery. Insert shows site for neck incision.

casions when the arteriosclerotic deposit was quite significant in the bulb and the remainder of the common, internal, and external carotid vessels were free of sclerotic disease. The cause for this fact is not apparent at present.

Summary

1. Spontaneous occlusion of the internal carotid artery is not of infrequent occurrence even under 40 years of age.
2. A brief historical review concerning spontaneous thrombosis of the internal carotid artery is presented and 9 additional cases are included.
3. The symptoms, signs, and their combined occurrence are discussed.
4. The rationale for routine palpation of internal carotid pulsations in the neck is presented.
5. Carotid artery bifurcation exploration in open angiography should be used as indubitable evidence to establish a diagnosis.
6. Dissection of the carotid arteries in the neck should be a part of every postmortem examination.

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Comparison of Clinical Diagnosis in Liver Disease With Chemical and Biopsy Findings

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Fifty-one patients admitted to the Durham Veterans Administration Hospital with a clinical diagnosis of liver disease comprise the material upon which this study is based. The purpose of this study is to evaluate the accuracy of clinical diagnosis and liver function tests as compared with diagnoses made by microscopic study of biopsy specimens.

Materials and Methods

Specimens of liver tissue were obtained from 51 patients clinically considered to have widespread liver disease. All but 3 biopsies were performed with a Vim-Silverman needle. Evaluation is limited to the 5 tests most frequently employed at our hospital: bromsulphalein retention, thymol tur-

bidity and flocculation, serum protein partition, serum alkaline phosphatase level, and the measurement of total serum bilirubin. Most chemical values were obtained within one week previous to biopsy. Those obtained more than 11 days previously are excluded.

The retention of bromsulphalein was measured 45 minutes after the injection of 5 mg. of the dye⁽¹⁾. Serum protein partition was accompanied by salting out the globulin with 26 per cent sodium sulfate. This concentration of sodium sulfate slightly increases the globulin precipitation over that precipitated with the more customary 23 per cent solution. Weichselbaum's biuret reagent was used⁽²⁾. Thymol turbidity and flocculation were measured by a modification of MacLagan's method⁽³⁾. Alkaline phosphatase was measured in Bodansky units⁽⁴⁾. Total serum bilirubin values were determined by the method of Evelyn and Mal-

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Table 1
Histologically Normal Liver

Case No.	Histologic Diagnosis	Thymol		Bromsulphalein retention (per cent)	T	Serum Proteins (Gm./100 cc.) A/G	Alkaline Phosphatase (Bodansky units)	Serum Bilirubin (mg/100 cc.)
		Turbidity (Units)	Flocculation					
1	Normal liver			0	6.1	4.4/1.7	4.4	0.50
2	" "			5	8.0	5.4/2.6		1.90
3	" "	0.9	0	0	2.5	1.8/1.7		0.85
4	" "	1.2		0	8.3	4.5/3.8		
5	" "				7.8	5.3/2.5		0.55
6	" "			7	7.6	3.7/3.9	1.4	0.25
7	" "	2.6	2+	<5	7.8	5.8/2.0	0.25	1.05
8	" "							
9	" "							
10	" "				7.5	3.7/3.8		0.35
11	" "							
12	" "	0.7	0	12	8.6	4.3/4.3	1.9	0.35
13	" "							
14	" "			0	6.3	3.9/2.4	3.4	0.50
15	" "				7.9	5.4/2.5	2.1	1.25
16	" "							
17	" "			0	8.7	5.8/2.9	2.0	1.05
18	" "							

loy⁽⁵⁾. All measurements were made in a Leitz colorimeter, except for bromsulphalein retention and thymol flocculation, which were measured visually.

The normal ranges for these tests in our laboratory are as follows:

Thymol turbidity.....0 - 2.9 units
 Thymol flocculation 0 - 1+
 Bromsulphalein retention 0 - 5 per cent
 Serum albumin 3.5 - 6.0 Gm./100 cc.
 Serum globulin 2.0 - 3.5 Gm./100 cc.
 Phosphatase 2.0 - 4.5 Bodansky units
 Total bilirubin 0.1 - 1.0 mg./100 cc.

Results

Patients with histologically normal livers (table 1): Eighteen patients with clinical pictures suggestive of liver disease showed no histologic change. Abnormal values for protein partition, thymol flocculation, bromsulphalein retention, and total bilirubin were found in a disturbingly high proportion of the cases. Clinically, 4 cases had been diagnosed as cirrhosis, 7 as viral hepatitis, 3 as granulomas, 1 as fever of unknown origin, 1 as cholangitis, 1 as amyloidosis, and 1 as hepatomegaly of unknown etiology.

Patients with cirrhosis, portal fibrosis, or fatty liver (table 2): Twenty-five such cases were proved histologically. Chemical abnormalities were most frequent in Laennec's cirrhosis, less so in portal fibrosis, and least common in fatty metamorphosis and biliary cirrhosis. Clinical opinion as to the types of

liver diseases present bore little more than a chance relationship to the final diagnoses established by biopsy.

Viral hepatitis (table 3): Seven cases of viral hepatitis were demonstrated by histologic examination. Five were considered to be in the acute phase and 2 to be subsiding, according to the criteria of the Registry of Hepatic Pathology, Armed Forces Institute of Pathology.

Abnormal values were usually obtained by all the chemical tests except the alkaline phosphatase determination.

Comment

The prime and most reliable bases for comparison in this study are opinions obtained from needle biopsy; liver function tests and clinical diagnoses are compared with the pathologist's histologic diagnosis. Nevertheless, it is realized that some histologic diagnoses based upon needle biopsies may be in error when compared with opinions based upon autopsy studies of the entire liver.

In this series, the study of needle biopsy material ruled out liver disease in 16 of the 51 cases in which it was clinically diagnosed or suspected. Most of the pathologic chemical values found in the histologically normal group were probably due to the presence of extrahepatic or widespread disease (chronic bronchitis, case 4; probable collagen disease, case 6; nephrosis, case 3).

Table 2
Cirrhosis, Fibrosis and Fatty Liver

Case No.	Histologic Diagnosis	Thymol		Bromsulphalein retention (Per cent)	T	Serum Proteins (Gm./100 cc.)	A/G	Alkaline Phosphatase (Bodansky units)	Serum Bilirubin (mg./100 cc.)
		Turbidity (Units)	Flocculation						
19	Laennec's cirrhosis			28	8.0	3.3/4.7		6.7	0.55
20	" "			26	6.2	2.9/3.3		5.2	1.05
21	" "			11	7.2	2.9/4.3		5.1	0.97
22	" "	1.3	2+	45	8.0	3.5/4.5		0.25	1.05
23	" "			20	6.2	3.8/2.4		5.2	1.65
24	" "	9.7	2+		7.4	3.8/3.6		3.2	2.05
25	" "								
26	" "			35	7.0	2.5/4.5		1.0	2.85
27	" "			41	6.9	2.0/4.9			2.85
28	" "			10	7.1	3.8/3.3			1.65
29	" "				7.5	4.3/3.2			1.40
30	" "			35	8.2	3.4/4.8		6.9	9.50
31	Cirrhosis, unclassified	0.9	0	< 5	6.8	4.0/2.8		2.0	0.10
32	Cirrhosis, postnecrotic			20	6.5	3.4/3.1			
33	Portal fibrosis			50	6.9	4.1/2.8			0.45
34	" "	0.9	0	< 5	7.8	4.4/3.4			
35	" "	1.7	0	25	7.7	4.4/3.3			
36	" "				11.0	4.0/7.0		3.9	
37	" "			10	9.3	4.6/4.7		8.3	0.45
38	Fatty liver	0.5	0	5	7.0	4.6/2.4		1.5	0.35
39	" "			12	8.3	4.7/3.6		3.7	0.55
40	" "	0.7	0		7.5	4.9/2.6			0.65
41	" "	0.1	0	7	7.0	4.0/3.0			0.40
42	Biliary cirrhosis	0.7	0	< 5	8.3	5.0/3.3		1.0	0.55
43	" "	1.5	0	5	7.8	4.5/3.3		1.6	2.95

Table 3
Viral Hepatitis

Case No.	Histologic Diagnosis	Days of Symptoms	Thymol		Bromsulphalein Retention (Per Cent)	T	Serum Proteins (Gm./100 cc.)	A/G	Alkaline Phosphatase (Bodansky Units)	Serum Bilirubin (mg./100 cc.)
			Turbidity (Units)	Flocculation						
44	Viral hepatitis, acute	30	6.7	3+	< 5				4.0	2.65
45	" " "	15	13.2	3+		7.9	3.7/4.2		4.5	10.95
46	" " "	16	1.1	0	30	7.3	3.8/3.5		4.2	4.95
47	" " "	42	3.7	3+	50	7.8	3.9/3.9		10.5	3.20
5	" " "	14	0.9	0	30	6.5	3.6/2.9		3.6	6.05
48a	Viral hepatitis, subsiding	11	4.9	2+	23	8.0	4.3/3.7		4.2	5.10
b	" " "	37	1.9	+	10	8.5	4.9/3.6		1.7	1.25
49	" " "	None								
Miscellaneous										
50	Necrosis, portal hepatitis									
51	Parenchymal jaundice					7.5	4.0/3.5		24.3	40.00
	Portal inflammation					6.8	4.5/2.8		6.7	8.17

In two instances the weight of clinical and chemical evidence points so strongly toward liver disease as to lead one to discount the normal histologic appearance. Patient 10 had a clinical history suggesting biliary tract disease of long duration, multiple abnormal liver function tests, and a papilloma of the gallbladder demonstrated

surgically. Patient 12 was an exterminator who had been exposed to hepatotoxic chemicals and manifested hepatomegaly, abnormal bromsulphalein retention and globulin values, plus a persistent leukocytosis of 12 to 15,000, which remained unexplained.

The problem of distinguishing between medical and surgical jaundice arose only

Table 4
Proportion of Abnormal Chemical Values
To Number of Cases Tested

Biopsy Diagnosis	BSP	Protein	Bilirubin	Phosphatase	Thymol
Normal	2/9	5/12	4/11	0/7	1/4
Laennec's cirrhosis	9/9	8/11	9/11	5/8	2/2
Portal fibrosis	3/4	2/5	0/2	1/2	0/2
Fatty liver	1/3	1/4	0/4	0/2	0/3
Biliary cirrhosis	0/2	0/2	1/2	0/2	0/2
Cirrhosis, other	1/2	1/2	0/1	0/1	0/1
Viral hepatitis	4/5	3/5	7/7	1/7	4/6
Case 50	—	0/1	1/1	1/1	—
Case 51	—	0/1	1/1	1/1	—
TOTAL	20/34	20/43	23/40	9/31	7/20
ABNORMAL	59%	46%	57%	29%	35%

twice. In neither instance was histologic examination particularly helpful. In patient 50, a 46 year old white man with marked jaundice of rapid onset and chemical findings strongly indicative of biliary obstruction, the histologic picture was of no value in the differential diagnosis. Autopsy demonstrated common duct obstruction by carcinoma of the head of the pancreas. In patient 51, a 64 year old white man with a similar history and chemical pattern, the major histologic finding was biliary stasis with portal inflammation consistent with the clinical diagnosis of hepatitis secondary to chlorpromazine therapy.

The correlations between histologic and biochemical findings agree in general with those recorded in the literature⁽⁶⁾. The most sensitive test in all types of hepatocellular disease was the measurement of bromsulphalein retention (table 4). Measurements of total bilirubin and of serum albumin and globulin were less sensitive indicators of parenchymal damage and frequently yielded abnormal values in patients with nonhepatic ailments. Total serum protein determinations were of no diagnostic value. Alkaline phosphatase levels were fairly often abnormal in chronic liver disease, but only once in viral hepatitis. The chief value of the thymol reaction seemed to be in the diagnosis of viral hepatitis. The chemical findings supported the histologic diagnosis in 75 per cent of the cases studied chemically, but were of little aid in differentiating the types of parenchymal disease from one another (table 5).

The clinical opinion as to the presence of

Table 5
Comparison of Histologic with Chemical Findings
Biopsy Diagnosis

	Yes	No
	Supported by Chemical Studies	
Cirrhosis, Laennec's	10	1
Cirrhosis, unclassified	1	1
Cirrhosis, biliary	0	2
Portal fibrosis	3	2
Fatty liver	2	2
Viral hepatitis	6	0
Portal inflammation		
Parenchymal jaundice	1	0
Portal hepatitis and necrosis	1	0
Normal	9	3
TOTAL—44	33	11

Table 6
Comparison of Clinical Diagnosis
With Biopsy Findings

Clinical Diagnosis	Histologic Evidence of Disease	
	Present	Absent
Cirrhosis, Laennec's	13	2
Cirrhosis, unclassified	1	2
Cirrhosis, biliary	1	0
Hepatitis	10	7
Granuloma	0	2
Lymphoma	0	1
Hemochromatosis	1	0
Amyloidosis	0	1
Liver disease, unspecified	8	3
*TOTAL—52	34	18
Percentage of total	65%	35%

*Two biopsies were done in Case 5, resulting in different histologic findings.

Table 7
Number of Clinical Diagnoses Changed
By Biopsy Findings

	No. Cases	Per Cent
Significant improvement	29	56
Minor change	2	4
Misleading change	2	4
Total changed	33	64
Total unchanged	19	36
Number of cases	52	100

liver disease was borne out by biopsy study in 65 per cent of the cases (table 6). Identification of the type of liver disease rested largely on the histologic findings, which significantly and usefully modified the initial diagnosis made on 56 per cent of the patients (table 7).

Summary

Fifty-one patients diagnosed clinically as having diffuse liver disease were studied by means of "liver function" tests and by biopsy.

Needle biopsy was by far the most accurate diagnostic tool. It resulted in significant and useful improvement in diagnostic precision in 56 per cent of the cases.

Clinical diagnosis showed a rough agreement with the histologic findings in 65 per cent of the patients.

The results of the liver function tests supported the histologic findings in 75 per cent of the cases studied chemically.

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Discussion

Dr. June U. Gunter (Durham): Dr. Andrews' study, it seems to me, confirms the work of others who have found that needle biopsy of the liver is the best known procedure to establish the nature of liver disease. The clinical laboratory tests used in this correlative study are in common use. The value of these tests, in general, in indicating the presence of liver disease has been confirmed. Since

the liver has many functions, it is probable that no test or combination of tests will ever be devised to tell us all about its functions and structure.

Needle biopsy offers the advantage of a wedge-shaped specimen taken directly from the edge of the liver. Deeper tissue is obtained, and it is likely to give a more accurate appearance of the defects which may be present.

Eighteen of the 52 patients which Dr. Andrews has reported had histologically normal livers which, by chemical studies, gave indication of liver disease. We shouldn't be too alarmed by this fact. The same is true of several other organs we could mention. For instance, the brain, the spleen, or the pancreatic glands can function abnormally without showing significant histologic changes.

Dr. Andrews reported that of cases showing histologic evidence of liver disease, the chemical tests supported the biopsy diagnosis in about 75 per cent. Since the liver has a good reserve capacity, it stands to reason that, at least in chronic liver disease, there can be considerable structural alteration without any significant disturbance of function. One can, therefore, never expect to achieve 100 per cent correlation with the present so-called liver function test.

The correlation achieved in this report is probably as good as can be expected at the present. It was pointed out that the bromsulphalein test was the most sensitive indicator of hepatitis to cellular disease, and that the thymol reaction is of considerable value in viral hepatitis. We have had limited experience with the zinc sulphate test, which may supersede the thymol turbidity test, since it seems to be independent of blood lipids. We believe that the alkaline test will be of considerable help in differentiating the so-called cholangitic form of hepatitis from obstruction of the common bile duct. Watson and Hoffbauer have pointed out that the alkaline phosphatase test is slightly or moderately elevated in cholangitic hepatitis or viral hepatitis, but never to the degree found in obstruction of the common bile duct. In the few cases we have seen in which exploration of the common bile duct yielded no evidence of obstruction, the appearance of the liver suggested hepatitis. Generally, in cholangitic hepatitis the alkaline phosphatase, while usually slightly elevated, is never as high as in genuine obstruction of the common bile duct.

Pathologists who are receiving or are going to receive, needle biopsy specimens of the liver for study should become familiar with the histologic criteria for the differential diagnosis of liver disease as published by the Registry of Hepatic Pathology. This scheme classifies liver lesions into four groups.

I wish that more of our clinical colleagues had heard Dr. Andrews' paper, since it is they who generally decide when a needle biopsy is to be done and who generally do it. We pathologists would then have to learn something about the interpretation of these studies.

Gastric Photofluorography

*An Analysis of 10,187 Survey Examinations
Done in North Carolina*

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and

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DURHAM

Every practicing physician, and especially the recent medical graduate, is aware that carcinoma of the stomach constitutes one of the greatest problems in the field of malignant disease at the present time. Autopsy statistics indicate that 6 per cent of all deaths in men over 20 years of age are due to gastric cancer and that the incidence increases to 9 per cent between the ages of 50 and 70.

As indicated in a previous publication⁽¹⁾, the prognosis in gastric carcinoma is extremely poor. Cooper⁽²⁾ has stated that the intensive effort of the medical profession in the treatment of cancer of the stomach has met with more discouraging results than any other malignancy, and that it is unusual for a physician to witness a cure regardless of the method of treatment.

The importance of early diagnosis in any type of malignancy has been emphasized by physicians and publicized by the American Cancer Society. The insidious onset of symptoms in 65 to 75 per cent of the cases of gastric cancer, however, almost precludes an early clinical diagnosis; therefore, it is the asymptomatic patient who offers hope for a possible cure.

Public interest in the problem of cancer has been greatly stimulated during the past few years. More recently, mass surveys have been conducted to detect cancer of the stomach in its early and asymptomatic stage. The practicality of such surveys by the photofluorographic method has been demonstrated by Swenson and Wigh⁽³⁾ of Jefferson Medical College, and Morgan and Roach⁽⁴⁾ of Johns Hopkins Hospital.

Wigh and Swenson has reviewed the work of Roach and Sloan, who found, among 10,000 examinations of dispensary patients, 5 asymptomatic carcinomas of the stomach. Using the photofluorographic method in his work of 1947, Swenson found 3 unsuspected

cases. Wangenstein⁽⁵⁾ and Rigler⁽⁶⁾ found 14 such cases in a survey of asymptomatic patients, making a total of 23 cases in three different clinics, with an operability rate of 95 per cent and a projected five-year survival rate of 43 per cent. Swenson emphasizes the significance of this total by pointing out that it is equivalent to about 250 symptomatic cases of carcinomas of the stomach.

Materials and Method

In March, 1949, the North Carolina State Board of Health began the first mass survey by the use of a Mobile Gastric Unit. The survey was started in Durham; the unit was set up in a parking lot adjacent to the City and County Health Department. Subsequent surveys were conducted in Roanoke Rapids, Wilmington, and Raleigh. A total of 10,187 patients had x-ray examinations of the stomach by the photofluorographic method. All patients were seen by appointment and only those more than 35 years of age were accepted for examination unless a request was presented from the referring physician.

Equipment

The equipment consists of a 300 millampere Westinghouse Radiographic unit, with an adapted Schmidt-Helm camera for photofluorographic work installed under the table similar to the equipment used in other clinics for gastric survey work. The machine was installed in a trailer which was constructed with the necessary ancillary equipment such as dark room, two dressing rooms, barium kitchen, and secretarial and record office. The overall equipment constitutes a small x-ray department (figs. 1, 2, 3, 4.)

Method of examination

The examinations were done without any change in the patient's clothing. The only necessary preparation was to abstain from food or drink from four to six hours. A

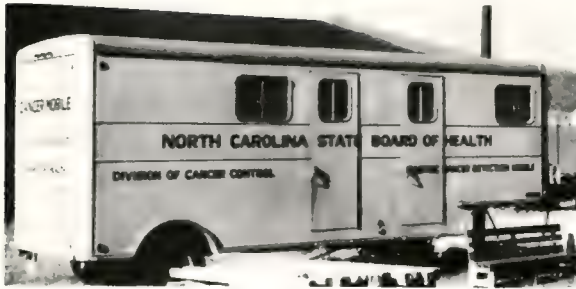


Fig. 1. Trailer in which the miniature x-ray department is set up.



Fig. 2. Secretary recording data on patients.

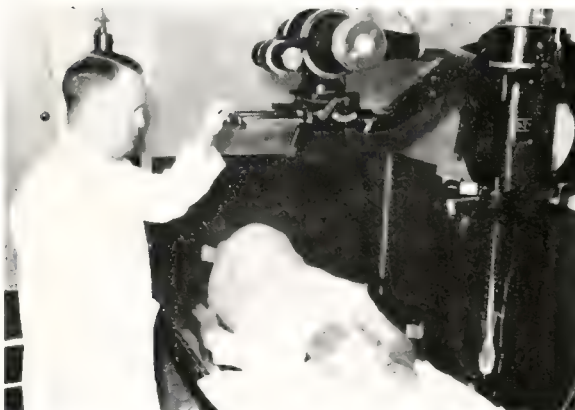


Fig. 3. Technician placing patients in position for x-ray studies.

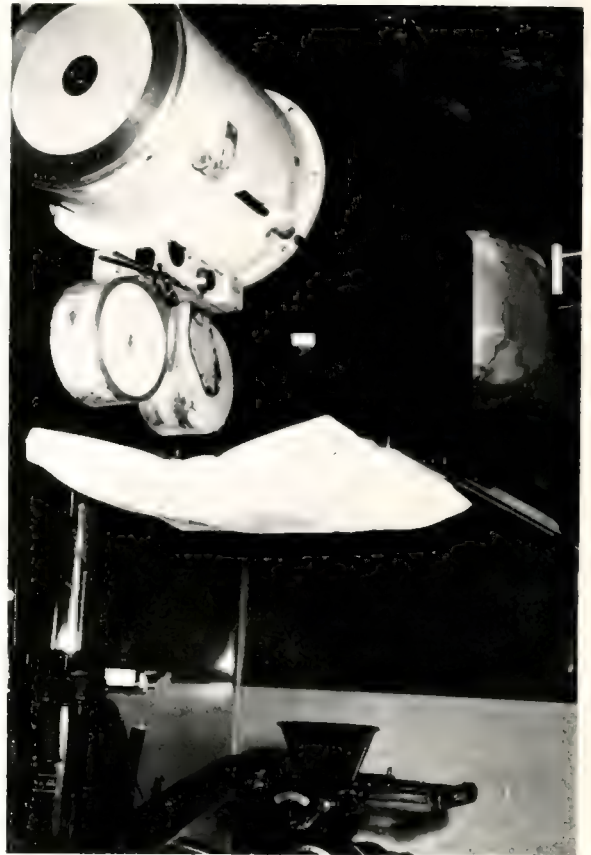


Fig. 4. The Schmidt-Helm camera located under the radiographic table.

series of six 70 mm. films were taken of each patient in the following positions: right anterior oblique for the esophagus; A.P. and PA of the stomach after the patient had been given 2 ounces of barium for study of the gastric mucosa; three additional films of the stomach in the right anterior oblique position after the patient had drunk 4 additional ounces of barium sulphate. The details demonstrated in such study are illustrated in figures 5, 6, 7, 8, 9.

Method of recording

Although the purpose of this study was to evaluate further the efficacy of the photo-fluorographic method of examining the stomach for the detection of gastric cancers, any other abnormality noted on the films which might be of clinical significance was also recorded. All films were interpreted by us. Since this was a mass survey, the study could not be limited to asymptomatic patients, as were the studies of Wigh and



Fig. 5. A series of films taken on each patient. (Figures 6, 7, 8, and 9 are enlargements of the miniature film. Note the detail visible in these enlargements.)



Figure 7



Figure 8

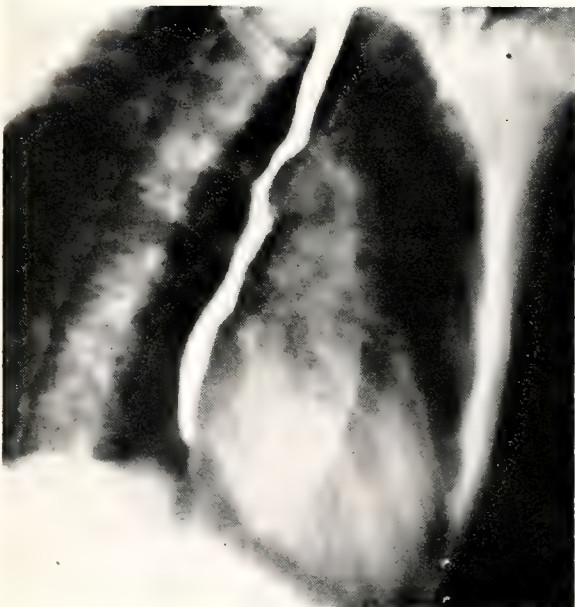


Figure 6

Swenson ⁽³⁾, Roach and Sloan ^(4b). Virtually all patients enumerated symptoms.

The findings were reported to the family physician as well as to the patient, with recommendations as to follow-up study. In the report to the patient, he was advised to con-



Figure 9

sult his family physician for follow-up study if symptoms persisted.

Findings

Abnormalities

Of a total of 10,187 patients examined, 68.9 per cent were women, as outlined in table 1. Some abnormality was noted in 1,559 patients (table 2). Of the patients with abnormalities, 739 had follow-up studies by routine roentgenologic examination of the stomach, including fluoroscopy and films. Three hundred and eighty-nine were positive (table 2). In an additional 152 cases, there was adequate clinical follow-up study to justify the conclusion outlined in table 4.

Malignant growths

These statistics show a find of positive malignancy of the gastrointestinal tract in 28 cases and a suspicion of malignancy in 29 other patients on whom no follow-up information could be obtained (table 5).

Twenty-five of the 28 patients with malignant lesions were operated on. These lesions included 2 of the esophagus, 21 of the stomach, and 2 described as being in the duodenum which were primary carcinomas of the pancreas. The 2 cancers of the esophagus had metastasized to the lungs and liver at

the time of exploration. Operations were performed on 21 of the patients with gastric cancer, 6 of which were limited to exploration. Ten of the resections were palliative and 5 were curative—that is, there was no definite evidence of glands at the time of operation.

Both of the lesions in the region of the duodenum, as noted above, were primary carcinomas of the pancreas, and surgery was limited to exploration.

Comment

That small gastric lesions offer more promise of cure is emphasized by Walter, Gray, and Priestley⁽⁷⁾ of the Mayo Clinic, who separated from 10,890 carcinomas of the stomach 105 cases in which treatment was limited to local excision, and yet which had a five-year survival rate of 42.9 per cent.

In an attempt to evaluate the photofluorographic method of x-ray examination of the stomach, we feel that its greatest worth will be found not in mass surveys, but in yearly studies of large numbers of patients more than 45 years of age. By such studies it may be possible to determine something of the accuracy of this method of diagnosing carcinoma of the stomach, and also perhaps to learn something about the rate of growth of these lesions. It is true that the ones we found were all sufficiently large to be easily demonstrated on the x-ray films; however, we believe that the diagnostic accuracy of photofluorography approaches, but does not equal, that of a routine gastrointestinal series. Just how early can we diagnose gastric cancer by x-ray? That is a moot question and can best be answered by the roentgenologist from the number of individual cases that he has diagnosed sufficiently early for a cure.

Summary

1. A mass survey of 10,187 patients by the Gastric Mobile Unit was conducted by the North Carolina State Board of Health.
2. The accuracy of the study seems to approach that of a regular gastrointestinal series.
3. Gastric photofluorography seems to have its greatest value in a study of a large number of individuals in the cancer age

Table 1
Age, Sex, and Race Distribution of 10,187 Patients

	TOTAL	29 and under	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75 and over
	per cent	2.6%	3.1%	20.4%	19.6%	16.4%	13.8%	10.1%	6.5%	4.3%	2.2%	1.02%
TOTAL	10,187	265	316	2,081	2,000	1,669	1,401	1,030	666	436	222	101
Female White	64.0%	161	196	1,324	1,307	1,111	922	649	411	259	124	56
Male White	29.2%	79	91	590	546	464	393	330	215	148	82	40
Female Non-White	4.9%	18	19	129	105	66	61	37	23	20	12	3
Male Non-White	1.9%	7	10	42	42	28	25	14	17	9	4	2

Table 2
Age, Sex, and Race Distribution of 1,559 Patients Diagnosed
As Abnormal from Miniature Films

	TOTAL	29 and under	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75 and over
	per cent	2.4%	2.2%	19.5%	17.4%	16.4%	14.6%	10.5%	7.1%	5.8%	2.8%	1.3%
TOTAL	1,559	37	35	304	271	256	227	164	111	90	43	21
Female White	53.2%	20	16	156	130	150	121	87	63	47	24	15
Male White	38.0%	14	12	113	113	86	87	69	41	37	15	6
Female Non White	5.6%	3	6	22	16	12	13	5	4	2	4	
Male Non-White	3.2%		1	13	12	8	6	3	3	4		

Table 3
Analysis of Cases with Reported Abnormal Findings on Survey Films
That Were Studied Further by Upper Gastrointestinal Series

Final diagnosis proven by follow-up roentgen studies	TOTAL	Impression of Abnormality on 70mm Films									
		Esophagus			Stomach			Duodenum			Pending Repeat 70mm films
		Diverticulum	Cancer	Ulcer	Diverticulum	Cancer	Ulcer	Hiatus Hernia	Ulcer	Cancer	
TOTAL	739	4	2	3	2	54	61	128	75	313	64
Negative	350	1		1	1	33	34	75	26	124	40
Positive pathologic findings	389	3	2	2	1	21	27	53	49	189	24
Duodenal ulcer	151	1			1	6	6	15	1	112	7
Disorders of stomach	68			1		1	6	12		29	6
Hiatus hernia	41			1			2		34	2	
Symptoms of gastrointestinal disturbance	29					1	1	16	1	6	4
Constipation	27					1	2	6	1	14	3
Stomach ulcer	15					2	4		1	7	
Gastritis	13					2	3	1	1	5	1
Disorders of esophagus	10					1	2		1	1	1
Disorders of gallbladder	9		2			3		1		3	
Cancer of esophagus	1					1					
Cancer of stomach	3					2					
Cancer of liver	1								1		
Suspicion of gastrointestinal malignancy	3					1				1	
Congenital malformation of digestive system	3						1			2	
14 other conditions	15							1		7	1

group in order to determine something about the growth of the disease.

4. The percentage of false positives—4.2 per cent—closely simulates the work done in other clinics.

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Mucormycosis of the Central Nervous System

A Case Report

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and

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WINSTON-SALEM

The purpose of this paper is to report a case of mucormycosis of the central nervous system which occurred as a postoperative complication. The medical literature includes reports of 9 cases of mucormycosis of the central nervous system⁽¹⁾, and a tenth case is briefly mentioned⁽²⁾. Gregory and others^(1b), in 1943, reported 3 cases of mucor infection of the central nervous system in diabetic patients. All subsequent reports of mucormycosis of the central nervous system have underscored the importance of lowered host resistance or ecologic factors, such as diabetes, which favor the growth of the organism, but there are no records of the occurrence of mucormycosis of the central nervous system as a postoperative complication.

Case Report

A 65 year old white woman was admitted to the North Carolina Baptist Hospital on September 7, 1954, complaining of a gradually enlarging tender mass in the right

upper abdomen. For 10 years prior to admission she had attributed recurring dyspepsia to gallbladder calculi which had been demonstrated by x-ray examination. Seven years prior to admission she had prolonged hematuria, which disappeared after surgical removal of a urinary bladder lesion of unknown type at another hospital. Ten months prior to admission she was successfully treated for herpes zoster at the level of the left D-10 dermatome and similar right-sided involvement. For four months preceding her hospitalization she had persistent sharp right flank pain requiring codeine for relief, accompanied by anorexia, and a weight loss of 7 pounds. She vomited once on the morning of admission. The only history consistent with diabetes mellitus was numbness of the third, fourth, and fifth toes bilaterally for 10 months, and the death of a brother with diabetes.

Physical examination

She was a well developed, pale, thin, elderly, white woman. The temperature was 98.6 F., pulse 88 per minute, respirations 16 per minute, and blood pressure 186 systolic, 102 diastolic. The significant physical findings were diffuse tenderness of the abdomen, most marked in the right flank, and a 4 by 3 cm. smooth tender mass in the an-

Read before the Section on Pathology, Medical Society of the State of North Carolina, Pinehurst, May 1, 1955.

From the Department of Pathology of the Bowman Gray School of Medicine of Wake Forest College and the Laboratories of the North Carolina Baptist Hospital.

Dr. Felda Hightower of the Department of Surgery gave his permission for this case to be reported. Mr. Ben Morton took the photomicrographs.

terior axillary line just below the costal margin. The mass moved with respiration.

Hospital course

At the time of admission, hemoglobin was 15.2 Gm. per 100 cc., red blood count, 5,500,000 cells per cubic mm., and white blood count 11,500 per cubic mm., of which 68 per cent were neutrophilic granulocytes, 4 per cent eosinophils, 2 per cent basophils and 26 per cent lymphocytes. Urinalysis, blood urea nitrogen, serum bilirubin, serum amylase, and icterus index determinations were normal. An electrocardiogram was normal. Roentgenograms of the chest, abdomen, and thoracic and lumbar vertebrae were interpreted as biliary calculi and minimal diffuse demineralization of the dorsal and lumbar vertebral bodies, with slight left lumbar scoliosis. Roentgenograms of the gastrointestinal tract, gallbladder and urinary system, using radio-opaque media, were interpreted as demonstrating nonfunctional gallbladder with probable calculus in the cystic duct and distortion and slight compression of the second part of the duodenum by a retroperitoneal mass. Cystoscopic examination was negative.

A medical consultant noted that the patient was a fair operative risk in spite of diminished cardiac reserve, hypertensive vascular disease, and questionable episodes of angina pectoris. Accordingly, on September 15, 1954, a cholecystectomy and exploration of the common duct were performed, using endotracheal ether, nitrous oxide and oxygen, and cyclopropane anesthesia, during which a T-tube was inserted in the common bile duct. After removal, the gallbladder measured 12.0 by 5.0 by 4.5 cm. and contained numerous small stones and a 4.5 by 2.5 by 2.0 cm. stone lodged at the proximal orifice of the cystic duct. She withstood the procedure well and made satisfactory progress during the immediate postoperative period.

Treatment included parenteral fluids during the first two postoperative days and daily doses of 400,000 units of penicillin and 0.5 Gm. of dihydrostreptomycin. On September 23, 1954, a cholangiogram was interpreted as normal and the antibiotics were discontinued. The serum bilirubin was 0.5 mg. per 100 milliliters, and the icterus index was 10 on the same day. However, the white

blood count was 37,000, with 89 per cent granulocytes, the red blood cell count was 4,800,000, and the hemoglobin was 13.5 Gm.; sugar in the urine was 4 plus, and there was a trace of protein, 10 to 12 white blood cells per high power field, occasional yeast cells, and a few hyaline and many granular casts.

The day after the cholangiogram the T tube was removed from the common duct, but the patient complained of headache and pain in the left cheek. During the day redness, swelling and induration of the left malar and periorbital soft tissue, ptosis of the left eyelid, a dilated, fixed pupil, loss of extraocular movements on the left, and increasing lethargy developed. During the succeeding 24 hours her temperature rose to 100.2 F., and her heart rate increased from 90 to 120 beats per minute. She had complete left internal and external ophthalmoplegia, conjunctival edema, loss of corneal sensation and the sensations of pain and touch on the left side of the face, and complete peripheral weakness of the muscles supplied by the left facial nerve. A non-specific eruption appeared on the skin about the left eye, but the ocular media were clear and there were no papilledema or distention of the retinal veins. The left tympanic membrane was slightly edematous and red, and there was tenderness over the left mastoid. The lumbar cerebrospinal fluid was clear; the initial pressure was 45 mm. of spinal fluid and the closing pressure was 30 mm. of spinal fluid. The cell count was 44 red blood cells per cubic millimeter, Pandy's test was negative, and protein 73 mg. per 100 milliliters. No growth was obtained on culture.

Dysphagia and weakness developed on the right side of the body and the patient became progressively more lethargic, semistuporous, and finally comatose. Treatment was supportive except for administration of Aureomycin. At one time the respirations, which were slow and deep, dropped to a rate of 8 per minute, but increased with administration of stimulants. On the day of death she responded only slightly to painful stimuli, the skin over the involved areas of the face was gray-white, and the discoloration had spread to the right peri-orbital region. The rectal temperature rose to 103.0 F., and the pulse rate to 160 per minute, while the



Fig. 1. Mucor and a granuloeytic exudate on the surface of the bulb of the left olfactory nerve (130 x).

blood pressure fell progressively. She died on the twelfth postoperative day.

Postmortem examination

The examination was performed three hours after death.

There was a mottled brown and red on blue circumscribed area on the skin of the face extending upward from the left malar region around the left eye and a short distance across the bridge of the nose towards the right eye. The left cornea was cloudy. The heart and great vessels were not remarkable, and the lungs appeared moderately hyperemic and edematous, particularly in the lower lobes. On the mucosal surface of the duodenum, just distal to the pylorus, there was a 1.2 by 0.7 cm. ulcer. The liver weighed 1,450 Gm., and within it were four circumscribed yellow and red soft foci, the largest of which measured 0.5 by 0.3 cm. in cross-section. The right kidney had a nearly spherical, circumscribed, and apparently encapsulated mass measuring 4 cm. in greatest

dimension. The mass was firm and lobulated, and its external surface was mottled yellow and red. The periphery of the sectioned surface was red-orange, and its central part was green-gray and gelatinous. The thyroid weighed 8 Gm., and had nodules up to 1.5 cm. in diameter. Within the pituitary between the anterior and posterior lobes was a 0.8 by 0.4 by 0.4 cm. firm, orange translucent mass, with its long axis directed transversely. The brain weighed 970 Gm. Its sulci were wide and its gyri narrow, but it was otherwise not remarkable. The gallbladder and appendix were absent and the remaining tissues and organs had no significant abnormalities.

Microscopically, the principal central nervous system findings were in the region of the bulb of the left olfactory nerve. The bulb was surrounded by a large number of granuloeytes in a fibrinous mesh-work, and granuloeytes were present perivascularly within the bulb. Within the left olfactory bulb

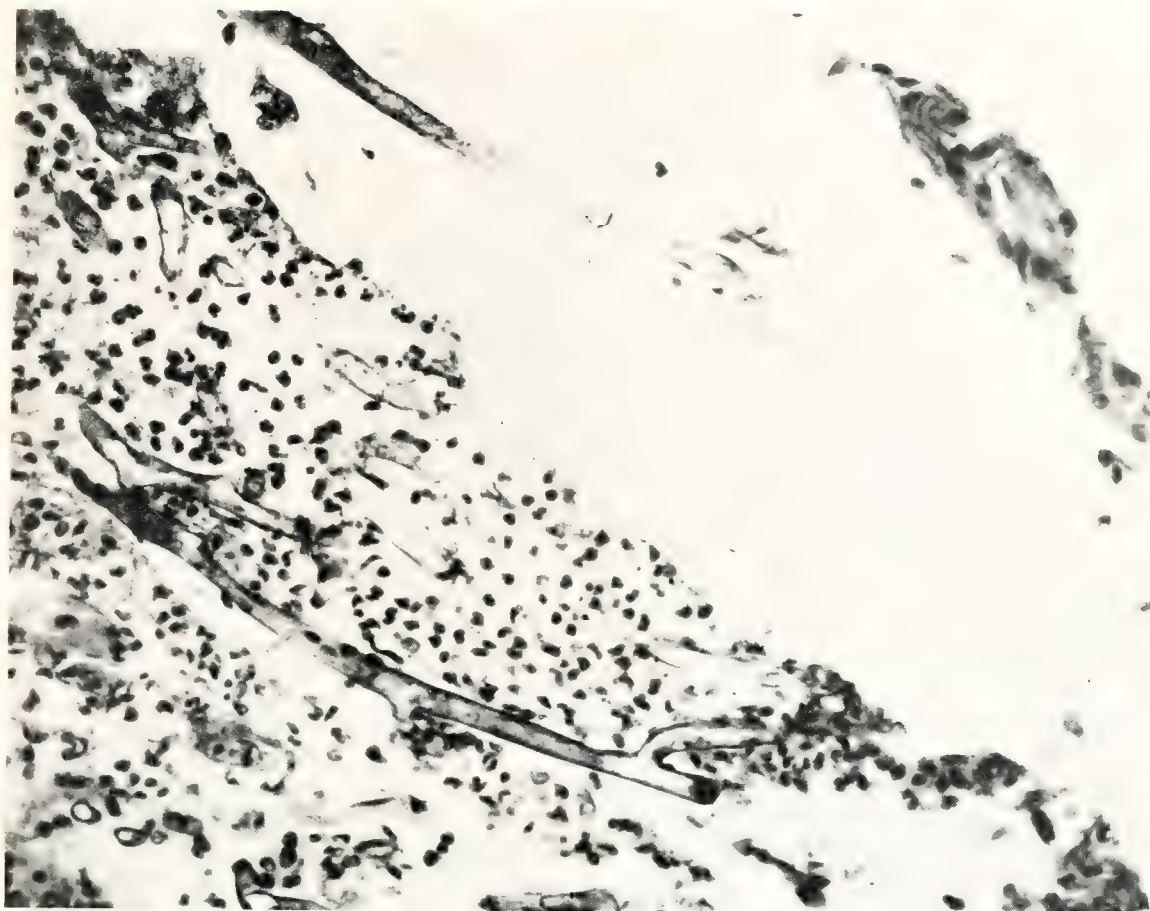


Fig. 2. Higher power magnification of the same area shown in figure 1.

and surrounding it were scattered clear, tubular, nonseptate, branching structures which stained pink with hematoxylin and eosin and red-purple with the periodic acid Schiff stain. In the leptomeninges about the optic chiasm, the cortex of the orbital gyri, and the pons, small to moderate numbers of leukocytes, predominantly granulocytes, were present, many of which were situated perivascularly.

The lungs were moderately hyperemic and had foci of edema, hemorrhages, vesicular emphysema, and atelectasis. The esophageal mucosa was focally denuded of its epithelium, and there was a healing ulcer of the duodenum just beyond the pylorus. The hepatic cells had scattered fat vacuoles, and a few nuclei were large and vesicular. A small abscess was present in the liver, along with smaller foci of granulocytes about which the liver cells were necrotic. There was moderate focal inter- and intra-lobular pancreatic fibrosis, but the islets of Langer-

hans appeared normal, and the beta cells were normally granular on use of the Gomori stain. The mass in the right kidney was composed of cylindrical to polyhedral cells, typical of a cylindrical cell carcinoma. No metastases were present. The remaining organs and tissues examined were unremarkable or had minor abnormalities not related to the final illness.

Comment

Mucor is one of the common bread molds belonging to the Mucoraceae family in the order Mucorales, a member of the class Phycomycetes. The fungus is characterized by long, wide, hyphae which branch in a nonseptate manner and bear terminal sporangia when oxygen is abundant. The organism or its spores is widely distributed and present in air and food.

Human mucormycosis is uncommon, but has been described as a disseminated infection and as involving individual organs and

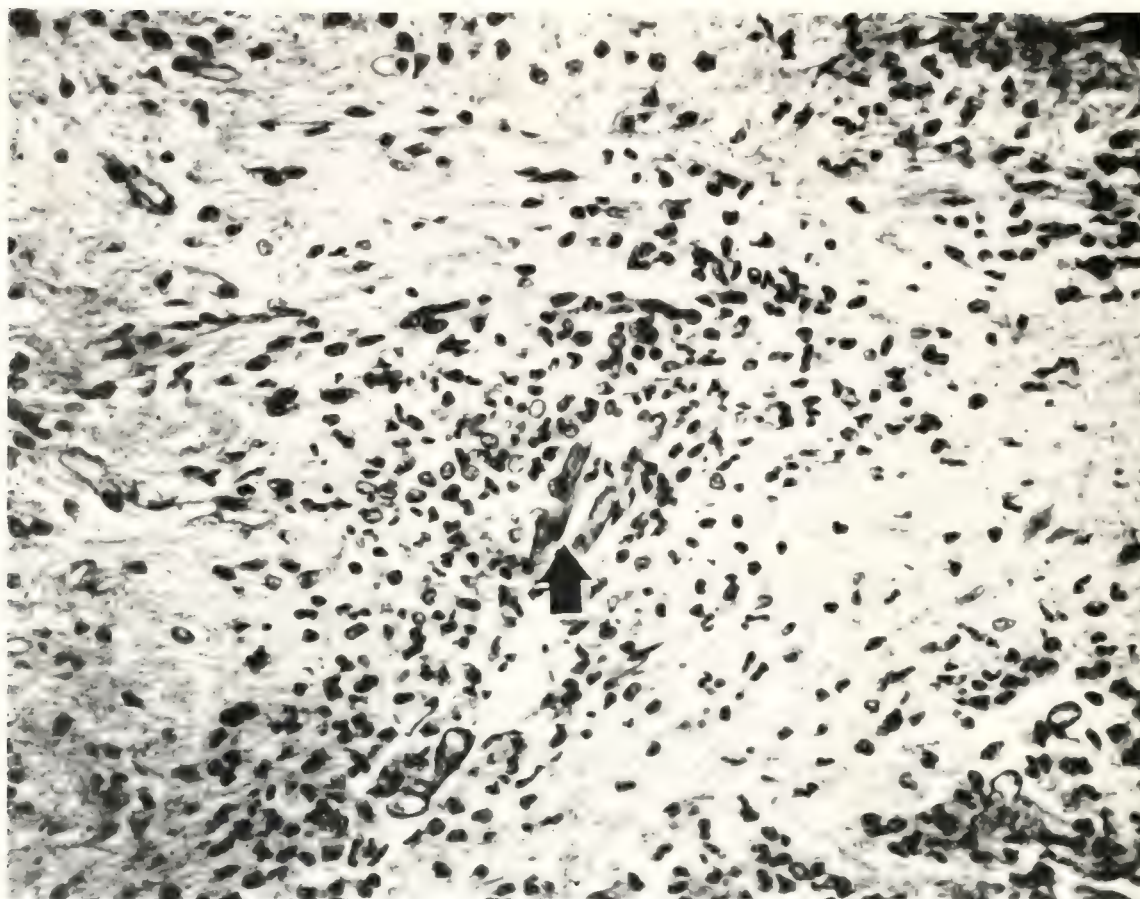


Fig. 3. *Mucor* surrounded by an inflammatory reaction in the center of the bulb of the left olfactory nerve (260 x).

systems. Based on the distribution of *Mucoraceae* in air and food, theoretically the skin, respiratory passages and gastrointestinal system are probably the most frequent sites of primary involvement. In this case the organism was found only in the brain, and its presence or absence in the skin of the face or the nasal passages was not verified.

Age, sex, race, and occupation do not appear to be important factors predisposing to mucormycosis, but the severity of the disease varies greatly. Under conditions favoring the host, the infection may resolve spontaneously or may respond to local treatment. A large proportion of recorded cases, including all of those in which the central nervous system was involved, have terminated fatally.

Diabetes mellitus is a known predisposing factor in fatal mucormycosis. In the absence of diabetes, Zimmermann⁽³⁾ has

cited three factors favoring dissemination of *mucor* and similar fungi—namely, poor host resistance, a point of lowered resistance, and an ecologic disturbance favoring the organism.

To these three factors, a fourth probably should be added—namely, the pathogenicity of the organism. Species identification has not been possible in most reported cases of mucormycosis because of failure to isolate the fungus by culture. Therefore, few data are available on the relationship between pathogenicity and species. In this case we were not able to obtain any new knowledge of this relationship. Tissue for culture was removed from the brain stem and frozen for preservation prior to culture inoculation, but the only organism isolated was an unidentified yeast considered to be a contaminant.

Recent reports indicate that any disease or injury sufficiently severe to lower host

resistance below an unknown critical level may predispose to mucormycosis. This case suggests that surgical procedures have a similar predisposing effect, particularly if accompanied by bacterial infection. The micro-abscesses in the liver were considered to be of bacterial origin, probably by biliary extension or from septicemia; however, postmortem blood cultures were negative. The history, course and strongly positive urine sugar determination suggest that uncontrolled diabetes may have been a contributing factor, but no confirmatory blood sugar determination was performed and there were no histologic alterations in any of the organs strongly suggestive of diabetes mellitus.

The point of lowered resistance may be any site in the body altered by disease or injury which affords a portal for entry of the fungus. The portal of entry and the mechanism through which it was provided are not known in this case. The nasal passages and nasal accessory sinuses were not examined radiographically or *post mortem*, nor was the skin of the face examined histologically before or after death. The prominence of the fungus about the bulb of the left olfactory nerve suggests that intracranial extension may have occurred through the cribriform plate.

Recently the antibiotics and drugs which influence the activity of the adrenal cortex most often have been incriminated in altering the host tissue response to favor growth of saprophytic organisms. That fatal fungus infections are on the increase has been a favorite topic for speculation. It is perhaps significant that some of the recent reports of fatal mucormycosis emphasize the absence of diabetes mellitus, whereas this disease was present in nearly all cases of mucormycosis reported in the pre-penicillin era. Antibiosis of the normal bacterial flora to fungi may theoretically be upset by destruction of the former so that fungi acquire pathogenic properties. In this manner the administration of antibiotics may have favored mycotic infection in this patient.

The characteristic tendency of the *Mucoraceae* to invade blood vessels and produce extensive tissue necrosis was not a prominent feature of the central nervous system involvement in this patient.

The diagnosis of mucormycosis in this case was based on the characteristic morphology of the fungus in the tissue. *Mucoraceae* have never been cultured from the central nervous system *post mortem*, and an absolute diagnosis of the disease must await isolation of the organism.

There is no known effective treatment for disseminated mucormycosis.

Summary

The first report of a case of mucormycosis of the central nervous system as a postsurgical complication has been presented. Human mucormycosis has been discussed briefly and factors predisposing to fatal infection by this organism have been reviewed.

Addendum

Since this paper was presented at the Medical Society of the State of North Carolina, two additional cases of cerebral mucormycosis have been reported. *Rhizopus oryzae* was isolated and identified in one of them⁽⁴⁾.

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Mediastinal Tumors: A Review of Sixty-Three Cases

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DURHAM

Mediastinal tumors are composed of many different neoplasms and from long usage include tumors adjacent to the mediastinum. In this discussion the tumors treated on the Thoracic Surgical Service of Duke Hospital since 1947 will be reviewed. With so many varied and complex lesions it is not possible to cover, in any detail, specific tumors. Since these tumors are easily shown by simple x-ray studies, the discussion will emphasize the problems posed by the demonstration of such a tumor.

Distribution of Tumors

Thyroid

The distribution of the mediastinal tumors is shown in table 1. Lesions of the thyroid, 13 in number, make up the largest group. With three exceptions, the enlarged thyroid extended into the mediastinum from the normal thyroid location. Two were true isolated benign intrathoracic goiters. One was a recurrence of a thyroid carcinoma in a mediastinal lymph node. The total duration of this latter patient's illness was nine years, and there has been a two-year survival since removal of the mediastinal recurrence. In all but 3 instances the thyroid was removed from the neck. In 2 of these instances the lesion could be removed by a thoracic incision alone. In some cases it may be impossible to remove the lesion through the lateral chest wall because of the origin of the blood supply in the neck. It is now our practice to approach all suspected thyroid tumors from the anterior part of the chest or, if the diagnosis is certain, through the neck. The indications for surgery in this group are obvious.

Neurogenic

Thirteen tumors arising from nerve elements were the next most common mediastinal tumors. Some of them were actually in the chest wall and not in the medias-

tinum. Two were sympathicoblastomas of very high grade malignancy. The remaining were benign and varied from neurofibromas to neurilemmomas. Two cases of intrathoracic neurofibromas associated with multiple neurofibromatosis, or Von Recklinghausen's Disease, were explored. These intrathoracic neoplasms were benign, but were so numerous that excision was not possible. Nearly all the neural tumors were located posteriorly and could not be differentiated from the meningoceles or osteochondromyxosarcomas. In 3 cases of benign tumors root pain was present before surgery. All the others were asymptomatic. The indications for surgery in the asymptomatic ones were for diagnosis. An occasional neurofibroma will invade the neural canal, but this was not noted in this series. Some will become malignant, an estimated 10 per cent⁽¹⁾. There were 2 malignant neural tumors in this group.

Meningoceles

In this series there were 3 instances of meningoceles. Only about 20 of these lesions have been reported in the literature⁽²⁾. Exploration was undertaken in one of our cases because of a possible solitary metastasis from a carcinoma of the breast. The other 2 were thought to be neurofibromas. Excision of the tumor was carried out in 1 case, but in the other 2 they were not disturbed, because one patient had multiple lesions. The second was an elderly patient, and it did not seem worth while to remove the tumor.

The third case is worthy of more detailed comment. This patient had had a fractured thoracic spine some 15 years before, and he was found to have five separate pouches emerging from the neural canal of the lower thoracic spine, both above and below the old injury. In the case of suspected metastatic malignancy, the lesion was not shown on films made four years before. This was three years before the patient underwent radical mastectomy. It has been suggested that if these lesions are suspected, a spinal air or

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Table 1
Mediastinal Tumors
1947-1954

Teratoid tumors	5
Bronchogenic cysts	2
Enteric cysts	2
Thymic tumors	6
Pericardial cysts	6
Lymphogenous cysts	2
Neurogenic tumors	13
Meningoceles	3
Thyroid tumors	13
Bone tumors	4
Fibrosarcoma	1
Leiomyoma of thoracic duct	1
Granulomas	3
Lipoma	1
Mesothelioma	1
Total.....	63

lipiodol injection would prove their presence and surgery could be avoided⁽²⁾.

Thymic

Six tumors of the thymus gland were included in the series. Two were malignant and originated in the lymphoid elements of the gland. Three were associated with myasthenia gravis. This relationship is not understood. In one case the myasthenia had been present longer than the tumor, while another had tumor before myasthenia occurred, and in the third the myasthenia and tumor were detected at the same time. One patient died after operation. There has been no change in the myasthenia in the remaining 2. In these patients the tumor is treated primarily for its malignant potentialities rather than its effect on the myasthenia. The pathology in these neoplasms is varied and may have lymphoid elements, epithelial elements, or a combination. The epithelial tumors are locally invasive but do not metastasize. The lymphomas behave as similar tumors arising from other areas in the body.

The surgical approach to these lesions is through the anterior chest wall through an interspace, and can be supplemented by a sternal splitting incision. The entire thymus should be removed in cases associated with myasthenia. The patients with myasthenia demand detailed care, and if secretions are a problem, tracheotomy should be done early. Even when a lymphoma is present, extirpation is indicated. The 2 patients in this series have survived five and seven years respectively, though similar lesions have occurred in other areas, necessitating radiation therapy.

Dermoids and teratomas

Dermoids and teratomas constitute an interesting group of mediastinal tumors. In this series there were 6 such cases. These lesions are usually anterior, about the base of the heart. Because of the large amount of foreign material in them, they are very prone to develop infection. Three of our patients were admitted for this reason. Not only had infection occurred, but erosion into the bronchial tree was also present. Twelve and five tenths per cent, according to Busby⁽⁴⁾, may become malignant. The diagnosis may be difficult. Removal is always indicated.

Bronchogenic

Bronchial cysts in some series⁽³⁾ constitute a large segment of mediastinal tumors. In this group only 2 were of this type. They are usually located about the tracheal bifurcation and larger bronchi. The 2 in our series were asymptomatic and represented incidental x-ray findings. These lesions have malignant potentialities as well as being possible sites of infections.

Enteric

There were also two cysts thought to be of enteric origin. One was in the superior portion and the other in the inferior portion of the mediastinum. They both caused obstructive esophageal symptoms, one in a newborn with a cervical cyst, the second in a 3 year old with an esophageal hiatus obstruction.

Serous

Another group of cystic structures are encountered in the thorax and are problems mostly in differential diagnosis. Cysts arising from the pericardium and filled with clear fluid and lined with a mesothelial lining were found in 6 instances. There was another lesion, a lymphogenous cyst, that grossly resembled the pericardial cysts. This was found in the superior mediastinum. A cystic hygroma in an infant is also included in this group. Pericardial cysts are found on both the right side and the left side. Occasionally one may have a direct communication with the pericardial sac. These lesions are asymptomatic and have to be removed only for diagnosis.

Osseous

Lesions originating from bone may give the x-ray appearance of being in the me-

diastinum. There were 4 such examples in this series. Two of the lesions, both osteochondromyxosarcomas, arose from the transverse process. One patient died six months following surgery from extension, while the other one is still alive more than two years later. There was one fibrous dysplasia of bone, and another patient with osteogenic sarcoma died shortly after biopsy.

Others

Some unusual instances were noted. One was a leiomyoma of the thoracic duct associated with a chylous thorax. There was a malignant mesothelioma. A fibrosarcoma of the posterior chest wall and a lipoma of the mediastinum are also included in the series.

In this series of tumors of the mediastinum 3 non-neoplastic lesions were found. These were Boeck's sarcoid, a granulomatous node secondary to silicosis, and a large tubercular node.

This report does not include a discussion of the lymphomas. They may be problems in differential diagnosis. The diagnosis of all these lesions should be established by thoractomy if other methods such as biopsy are not productive. Empirical use of x-ray is never indicated except in patients too sick to tolerate a thoracotomy. Local excision is sometimes feasible and may be followed by long term palliation.

Comment

Tumors originating in the mediastinum or adjacent to it are not problems in detection, for routine roentgen examination easily demonstrates the presence of the tumors. In most instances the tumors are noted well before the onset of symptoms. The necessity of more accurate preoperative diagnosis is not urgent, for the treatment of all these lesions is by early surgical exploration. In only 21 per cent of our cases (table 2) were

Table 2

Complications of Mediastinal Tumors

	No.	Per Cent
Malignant tumors	9	14
Infected tumors	3	5
Tumors with infection or malignant potentialities	38	60
Tumors without infection or malignant potentialities	13	21
Total	63	100

the lesions without potential danger, and there is no way of separating these from the remainder without operation. Exclusive of lymphosarcoma, 14 per cent of the lesions were malignant at the time of surgery; while 5 per cent, all dermoids, were associated with severe complications from infection.

In this series of 63 cases there were 2 deaths. One occurred in the postoperative period in a myasthenic patient due to exacerbation of his disease. The second was from cardiac arrest in a patient with an infected dermoid that had eroded into the pleura and the bronchus. In the group without preoperative complications or associated disease there were no deaths or significant morbidity.

Summary

The distribution of 63 mediastinal tumors is outlined. Certain clinical findings and experiences with treatment are considered.

In most instances these tumors are incidental x-ray findings. Prompt surgical exploration is indicated on demonstration.

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CORRECTION

We deeply regret the omission of one word from the title of Dr. E. L. Marston's article in the December issue of the NORTH CAROLINA MEDICAL JOURNAL. The title should have read: "Post-Cholecystectomy Perichondritis: A Clinical Syndrome." Our sincere apologies to Dr. Marston for this error.—Ed.

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service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
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JANUARY, 1956

THE NORTH CAROLINA MEDICAL JOURNAL'S NEW LOOK

This issue is the first number of Volume
17 of the NORTH CAROLINA MEDICAL JOURN-
AL. While by comparison with many of our
contemporaries this JOURNAL is still com-
paratively young, it is at least well within
the adolescent age. A natural quality of ado-
lescence is some concern over physical ap-
pearance. The more-than-casual observer
should note a number of changes in the
make-up of this and succeeding issues.

The new look includes: (1) a slight in-
crease in the size of the page, giving wider
margins; (2) double headings for each origi-

nal article, instead of thus distinguishing
only the first one; and (3) wider spaces
between the lines in the case reports, the
Bulletin Board, and all matter set in 8-point
type. The combination of wider margins,
double headings, and more space in the 8-
point material should make the JOURNAL
seem less crowded.

The editorial board and our publishers
join in the hope that adolescent vanity does
not inspire the wish that our readers will
find the new look more attractive to the eye.
At least they should find the JOURNAL easier
to read.

* * *

THE HISTORY — THE PHYSICIAN'S RESPONSIBILITY

The presidential address of Dr. R. L.
Saunders at the November meeting of the
Southern Medical Association⁽¹⁾ was a
thoughtful analysis of values in medicine.
His long experience as a teacher, a student,
and a practitioner of the art of surgery
gives weight to his words. It is encouraging
to hear him say that the laboratory is no
longer the principal factor in diagnosis, and
that "emphasis is currently being placed
more and more where it belongs: upon a
thorough history and clinical examination."

Editor Kampmeier uses this statement as
a text for an excellent editorial⁽²⁾, which is
so good that it is quoted in part:

... the adequate history is the mainstay of
diagnosis, not surpassed by any other diagnos-
tic technic used or available, whether the phy-
sical examination, the laboratory tests, or the
special aids such as the x-ray film or the elec-
trocardiogram. This is a general statement,
and the exceptions to it make up the minor-
ity . . .

Obviously the importance and length of the
adequate history will vary within wide limits.
The history in the patient who has a fracture
deformity of an extremity which meets the eye
may need only a sentence or two to record how
the accident occurred. This history in an in-
stance of acute upper respiratory infection may
be brief.

But when the patient's complaint is one of
chronic nature, or indicative of systemic dis-
ease the history comes into its own as the main
highway to diagnosis. The clinician's acumen
and experience stand out boldly in his history,
his clinical background being recorded in the
queries made and the selection of the material
set down on paper. If this statement is true
there is a corollary one—the physician respon-

sible for the patient cannot delegate the history taking to anyone else.

Here is his most valuable tool in diagnosis and he must perforce wield it himself. The history itself may provide the diagnosis. If not, it may offer the necessary aid to interpret physical findings and thus lead to the diagnosis. Or, if still more objective study is needed, the history only can point to the intelligent use of laboratory and other diagnostic methods. The use of diagnostic aids without an adequate history is like a rudderless ship veering crazily from one point to another, devoid of a course set to find a harbor. Because of the mental laziness which leads to dependence on objective diagnostic aids, the medical profession has forfeited much of the public's respect for his astuteness and experience, and he himself has educated the public to think of him as an interpreter of reports from laboratories—a kind of super-technician, one lacking the acumen to make a diagnosis without spending a month of the patient's salary.

The statement made that a history is often the only diagnostic resource at hand can be easily proven if one thinks of the great mass of functional or psychosomatic complaints presented to the doctor daily. Is there any method of making such a diagnosis objectively? Obviously not! . . .

Since how a patient answers a question may be more important than the content of the answer, only the doctor responsible for the patient can take the history. Can the nurse interpret for the doctor the emotional reaction in tears, flushing, blanching or a tremulous voice—clinical signs of the patient's fears, frustrations, anger and disappointment? Only the doctor can correlate these signs with the content of the history.

And finally, unless the doctor takes the history in the case of chronic or severe systemic disease, how can he learn to know his patient, and how can the patient learn to know his doctor? All too frequently one hears the patient complaining of the number of visits made to his doctor's office without ever having had a real talk with him and of not being able to discuss his troubles freely.

This JOURNAL would like to underscore particularly the value of the history as a therapeutic measure, and also as a public relations policy *par excellence*.

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IS AN INTERNSHIP NECESSARY?

As the number of hospitals in this country has increased more rapidly than the proportion of medical school graduates, the smaller, so-called "non-teaching" hospitals have found it more and more difficult to obtain interns. Although it is hard to see how the problem would be solved by abolishing the internship, the proposal has been made seriously.

The 51st Congress on Medical Education and Licensure, held in Chicago February 7, devoted much time to a symposium on the internship. The *Journal of the American Medical Association* for July 30 published the six papers read at this meeting. The future of the internship was discussed from five standpoints: the non-affiliated hospital, the specialty board, general practice, the state licensing board, and the medical school. In the sixth paper, Dr. Edward H. Leveroos answered in the negative the question, "Does the Internship Have a Place in Modern Medical Education?" It is significant that Dr. Leveroos's was a lone voice. All the others agreed that an internship of one to two years was essential to bridge the gap between medical school and either general practice or residency training for a specialty.

It is also significant that the consensus favored a rotating rather than a straight internship, since it offered better training for either general practice or a specialty. It was pointed out that a straight internship is really the equivalent of the first year of residency training for a specialty. The Academy of General Practice in 1947 recommended a two-year rotating internship, or at least of hospital training, calling the second year an internship or residency in general practice.

In his paper on the internship from the medical school standpoint, Dr. J. McK. Mitchell, Dean of the University of Pennsylvania School of Medicine, said that the reason given for the present low state of the internship was pressure from the clinical clerkship below and the residency above. To refute this impression, Dr. Mitchell gave the results of a questionnaire submitted by an advisory committee of the Council on Medical Education and Hospitals to graduates of the 1947 classes.

1. Eighty-eight and nine-tenths per cent thought that the residency training program

in their hospital had improved the value of the internship, while only 4.9 per cent felt that it had detracted.

2. Seventy-two and eight-tenths per cent believed that the presence of clinical clerks had improved the internship; only 1.2 per cent considered it detrimental.

3. Seven hundred forty-two thought the patient load too heavy, only 71, too light.

Undoubtedly the smaller non-teaching hospitals are having a hard time in securing house officers, especially first year graduates. To offset their inadequate teaching facilities, many of these offer tempting financial inducements. It is important, however, that the staff members of these hospitals devote more time to teaching. It is also obvious that, with the present excess of demand over supply many of our larger and teaching hospitals will be forced to pay their interns more than mere token salaries. This, after all, is only justice.

Dr. Leveroos ends his paper with the conclusion that "the internship should be abolished, assuming that the basic contention is sound, *i. e.*, the internship no longer provides sufficiently advanced educational opportunities and experience to justify its continuation as a separate and distinct phase of medical education."

Against this may be opposed the conclusions of the other authors:

Dr. David A. Boyd, Jr., for the specialty board: "... between medical school years and specialization, there should be a period of experience in recognizing and managing the total needs of the patient under supervision. If present-day internship provides this opportunity in a meaningful way, the internship is a necessity and should be retained at all costs. If the present-day internships do not provide such an opportunity, they should be modified so that these most important needs . . . are met fully and thoroughly."

Dr. William B. Hildebrand (General Practice): "Certainly, the internship is a natural transition into the responsibilities of residency and of practice. Let us keep it, but let us enlarge it and let us make it better."

Dr. Stiles D. Ezell, state licensing board: "Licensure's only logical attitude toward the internship is one of vigorous defense. The internship, as either an educational or

a training experience, represents an important phase of the area of medical education involved in the licensing examination."

Dr. J. McK. Mitchell (medical school): "Therefore, it is my conclusion that the internship does have a very real place in modern medical education and that it is now where it belongs, the first year of hospital training after leaving medical school. Call it what you will—internship, first year residency, junior residency, assistant residency—it remains the first year of hospital training. However viewed, there must be a first year of such training, and so one can actually do away with the internship in name only."

* * *

THE STATE MEDICAL JOURNAL CONFERENCE

The bi-annual State Medical Journal Conference was held in Chicago, November 7 and 8. The dinner meeting was in the Sherman Hotel, the other sessions at the A.M.A. headquarters.

This year a new type of program was arranged: a blend of addresses, "workshops," and a CPC sort of presentation by Messrs Bill Burns, executive director of the Michigan State Medical Society, and Earl Thayer, assistant secretary of the Wisconsin Society. They gave an unrehearsed discussion, "Use of News Material and Economic Data in State Medical Journals," which was very well received as the finale of the last afternoon program.

The four workshops were devoted to: format and makeup, editing, publishing costs, and advertising.

A detailed account of the conference would not be of particular interest to our readers, but it is hoped and expected that they will benefit from it by a certain amount of face-lifting which the NORTH CAROLINA MEDICAL JOURNAL is expected to undergo, beginning with the current issue.

The NORTH CAROLINA MEDICAL JOURNAL was well represented at the conference by Mr. James T. Barnes, business manager, Mr. Robert Carmichael, publisher, and Dr. Wingate M. Johnson, editor. All agreed that the sessions were well worth while.

President's Message

MEDICAL LEGISLATION

It may be your last chance.

The only thing necessary for the triumph of evil is that good men do nothing.

—Edmund Burke

Both of the statements heading this paper apply appropriately to what is happening to the free practice of medicine and our American way of life. These blessings have given us the happiness, comparative abundance, and freedom which have made this country great. We can rightfully boast of our material advances in this twentieth century. We can also boast of our scientific advancements in medicine. But we should not blink at the fact that it has likewise been the bloodiest period in human history. Modern ingenuity has made possible universal death and destruction by the atom and hydrogen bombs.

A Grim Record on the National Front

During the past 40 years, 63 million human beings have been killed in two world wars. Countless millions of others have been crippled. The cost in money was more than a thousand billion dollars. Most of us can remember that 33,000 Americans were killed and more than 103,000 wounded in the Korean conflict, which cost another 100 billion dollars. Out of a budget of 62 billion dollars, 41 billion is for defense against new and deadly conflicts; 4.5 billion dollars must be set aside to pay for obligations accruing from past wars. Only 17 billion out of the 62 billion dollars has been budgeted for the normal function of our government—still no lasting peace!

A Grim Record on the Medical Front

For 20 years politicians and socialists in the federal government have sought to nationalize American medicine. In 1935 the socialist experts tried to have national compulsory health insurance included in the original Social Security Act. In 1939 the Murray-Wagner-Dingell Bill called for a federally operated system of medical and hospital care within the social security system. In 1947 a new Murray-Wagner-Dingell Bill was introduced, for the same pur-

pose. Both failed. Neither party dared to try to nationalize medicine at one "fell swoop." Strategy was changed from an omnibus to a piece-meal approach.

The first sweeping and ominous threat came in 1950 with enactment of H.R. 6000, "the Social Security Amendment of 1950." This bill provided federal funds for money payments, medical care, and remedial care for needy individuals 18 years of age or older, if permanently and totally disabled. It did not immediately nationalize medicine, but it did draw the medical profession into the government's magnetic field of power. The federal social planners had finally discovered the route to nationalize medicine. Physicians, for the most part, had opposed the bill weakly. But few understood its significance. Physicians failed to recognize that in accepting federal payments they must, of course, accept federal control. Nor did they dream the government would give them the opprobrious title, "venders of medical care."

The government next manipulated physicians into the social insurance part of the social security program, with H.R. 7800. This bill set in motion the machinery for medical certification of permanently and totally disabled workers in O.A.S.I. It was a foot-in-the-door bill, setting up medical certification procedures.

"The Social Security Amendment of 1954, H.R. 9266, made provision for the Department of Health, Education, and Welfare to enter into disability certification agreements with states—statism. When the program is in full swing and medicine has been completely nationalized, physicians undoubtedly will be paid by the government for certification of all illness. Oscar Ewing years ago summed up the government's one-man power in the administration of Social Security when he said, "The ultimate authority is vested in me." Now it is vested

in the Secretary of Health, Education, and Welfare.

H.R. 7225, passed by the eighty-fourth Congress, now pending in the Senate for early action in 1956, is the next step in the nationalization of medicine. This bill was written in the House Ways and Means Committee in closed hearings. Interested citizens were denied the right to voice their opinion on this social legislation. It was rammed through Congress by the undemocratic process of suspending the rules, denying amendments, and limiting debate to 40 minutes. One can imagine this type of legislation in Russia or China. It is appalling that it happened in America. Fortunately, the Senate Finance Committee has promised to hold open hearings on this bill in 1956. Among its many provisions is the one to pay cash benefits to the totally and permanently disabled workers, 50 years of age and over. If this bill is passed by the Senate, it will be the second step in bringing the medical profession into O.A.S.I. The next step is for the government to furnish medical care, not only for the totally disabled, but for those temporarily ill, and finally for all the sick and disabled, as in England, Russia and Germany. The same bill provides for inclusion of the self-employed in the social taxing system. Physicians would remain out momentarily, stranded on their island of freedom, in an engulfing sea of socialism. Other provisions of the bill have far-reaching medical and economic implications which you should study.

*The Government is Attacking Medicine
on the Following Fronts*

(1) The Veterans Administration program of medical care for non-service connected disabilities; (2) the Social Security charity assistance program for medical care; (3) the Social Security Insurance Program for medical certification of the totally disabled; (4) the Social Security Insurance Program for cash payments to the totally and permanently disabled 50 years of age and over; (5) the Rehabilitation program. (6) the Medical Care program for defense personnel and their dependents. (7) compulsory inclusion of physicians in the Social Security taxing system; (8) federal funds for medical schools, hospitals, and diagnostic and treatment clinics. From the begin-

ning of the Social Security Act in 1935, American Medicine has been marked for nationalization by the government. These are the nefarious measures, solidly backed by the powerful A.F.L.-C.I.O. labor organization in New York a few months ago.

One-packaged bills for compulsory health insurance were not successful. The government's strategy was changed in 1950. Success was immediate. The medical profession as a whole, with but few notable exceptions, was either unaware of what was happening or did not care. We have suffered one defeat after another in Congress. Apathy and despair have been to blame. Unquestionably, 1956 will decide whether American medicine is ultimately to be taken over by the federal government. H.R. 7225 is the bill that will decide physician's fate for decades to come. Social Security amendments are the legislative route to the Welfare State.

1956 might well be the year of decision in the future practice of medicine. The constantly changing socio-economic picture and the tremendous expansion of industry compels us to face medical-labor and medico-social problems which we once thought distant. A physician, no matter how little or indifferent his knowledge of these problems may be, must realize that medical practice is now being shaped by the powerful tide of social, industrial and labor changes that is sweeping the country. In order that the best results be attained in our relations with the various forces concerned, we must be solidly united in number, thought, and effort. We must concern ourselves with giving the greatest good to the greatest number, not in giving special favors to a certain few.

Private dealing with group or community agencies, and with labor, organized or unorganized, will bring no lasting good for either party. A wholesome and united consideration of the medical needs of all our people will bring more gratifying and lasting results. We must be most careful not to relinquish our leadership in the field in which we are eminently qualified by study and license. We must remain loyal to our concepts of medical practice. It will require the undivided support of the membership of the society, with the knowledge before-

hand that the road ahead is steep and full of obstacles and road blocks.

What Can You Do About It?

You must not take a defeatist attitude. The belief that "opinion doesn't count in shaping the policies of our government" can be very harmful. Your opinion does count. Every individual has a definite part to play—and must play—if we are to survive as a free profession. In a democracy, no government agency can possibly function effectively if it cannot hear the voice of the people it represents. No policy—foreign or domestic—makes sense if the American people do not display an interest in it.

Be informed

As physicians, you must inform yourself thoroughly on all medical legislative matters, have a clear understanding of them, and out of this knowledge voice your opinion to your representatives in Washington. The bed-rock foundation of medical legislative policies must come from informed physicians. Every letter you write to your Washington representatives is read. The more careful you are in thinking out and stating your critical comments and recommendations, the greater effect they will have. The more individual physicians and organizations adopt resolutions in favor of, or opposing, medical legislative measures, the more attention our legislators will pay them. It would be folly for our government to ignore your opinion. Your opinion counts, even if you neglect to express it. Too often, those who endorse a policy, merely nod to themselves, while those who oppose your views, raise their voices.

Decide when to act

You must decide for yourself if, when, and how, you will act. It is your individual responsibility. Your action is between you and your conscience—between you and your God. American medicine will survive as a free enterprise or be socialized. It depends on your sense of personal responsibility and individual initiative in helping to shape the trends of medical practice. Failure to do your part will make possible the "triumph of evil." Remember, it may be your last chance to make your voice heard in shaping the policies of medical practice. What you

do or fail to do may also involve, for better or for worse, the freedom of generations to come.

We Must Not Fail

The watchword for all of us is to "spend and be spent." It is important whether any one man fails or succeeds. What is more important, and what counts most is that our cause must not fail, for it is the cause of mankind. We must not close our eyes and ears and view our problems with myopic vision, in the hope that the evils which plague us will, in some vague manner, go away and leave us alone. It is regrettable that physicians are not left free and unhampered to give their professional services to all who ask. As of now, it is our duty and obligation, as citizens and physicians, to give part of our time to the problems of organized medicine.

I urge every physician in North Carolina to make it a *must*—to keep himself well informed on all legislation affecting the practice of medicine. Information on these questions is available in the *Journal of the American Medical Association*, the *NORTH CAROLINA MEDICAL JOURNAL*, and in your headquarters office in the Capital Club Building, Raleigh. If American medicine is socialized, it will be due to self-satisfaction and complacency on the part of physicians themselves.

It is good old-fashioned horse sense to evaluate the strength of the enemy. We must know what to fight—socialism. This knowledge of the task should not cause discouragement, but should urge us on with more determination and unity to succeed in our battle for freedom.

They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety—Benjamin Franklin.

Let us show the world that men of intelligence and good will can handle their own affairs, and in doing so recall the words of George Washington, who said: "If to please the people, we offer what we ourselves disapprove, how can we afterward defend our work? Let's raise a standard to which the wise and honest can repair—the event is in the hand of God."

Committees and Organizations

NATIONAL FOUNDATION FOR POLIOMYELITIS

POLIO AHEAD: THE REASONS BEHIND THE 1956 NORTH CAROLINA MARCH OF DIMES

Although the number of polio cases reported in North Carolina in 1955 was only about two-thirds the average number of the previous five years, North Carolina will still have polio problems in 1956. The Salk vaccine has proved to be a major weapon against paralytic poliomyelitis, but it has not yet won the war against this disease.

Continuing cooperation of physicians must be had both in administering the vaccine and in caring for patients already paralyzed and *who will be* paralyzed in spite of the vaccine. The Salk vaccine is not 100 per cent effective and it will take considerable time yet, perhaps years, before all individuals most susceptible to paralytic poliomyelitis can be fully immunized against it.

The National Foundation for Infantile Paralysis, supported through public contributions to its January March of Dimes, has made an enviable record, both in this state and nationwide, for meeting the problems posed by paralytic polio. In 1955 the March of Dimes gave more than 391,000 cc. of Salk vaccine without charge to the state of North Carolina to initiate a statewide vaccination program.

The results already reported from the use of the vaccine are most encouraging, but they must not be allowed to blind the eye of the medical profession to the road that still lies ahead. There remains a great need for additional research to improve the Salk vaccine, to determine the duration of immunity it effects (and conversely to determine the need for "booster shots"), and to provide the best possible treatment for patients already or yet to be involved with paralytic poliomyelitis. There is also a vast need for the professional education of young men and women who will contribute to the necessary research and help give the needed treatment.

To pay for research, education and aid to polio patients, the March of Dimes needs

\$47,600,000 in 1956. North Carolina physicians, knowing both the need and the record, will want to support and urge their patients to support the 1956 March of Dimes in their own communities.

A brief review of the record of the National Foundation for Infantile Paralysis in North Carolina, where it has 100 local chapters, should help to orient physicians to the many services to patients and the profession which have been made possible by the March of Dimes since 1938, when the National Foundation was founded.

More than \$8,220,000 has been spent by local chapters in North Carolina for the care of polio patients.

A total of 114 National Foundation scholarships and fellowships has been awarded to North Carolina residents.

Professional education grants, in addition, to North Carolina institutions have totaled more than \$666,000. Among the institutions which have had these March of Dimes grants are Duke University, the University of North Carolina, and North Carolina College at Durham.

Research in virology and in the treatment of after-effects of poliomyelitis has also been conducted in North Carolina with the aid of March of Dimes grants totaling nearly \$230,000. The institutions which have had these grants include Duke University, the University of North Carolina, and the Bowman Gray School of Medicine of Wake Forest College.

Emergency aid in dollars and in equipment for polio patients has been generously supplied to North Carolina. In the first 11 months in 1955, for example, a total of about \$55,600 in emergency aid was sent to 16 North Carolina chapters by the national headquarters of the National Foundation. In the year 1954 the amount was over \$280,000 to 30 chapters.

A total of 10 tank respirators, 5 chest respirators and 3 rocking beds was sent into North Carolina as emergency shipments in the first 11 months of 1955. The previous year North Carolina got 37 respirators and 18 rocking beds.

BULLETIN BOARD

COMING MEETINGS

North Carolina Public Health Association, Annual Meeting—Charlotte, May 31, June 1.

American College of Surgeons, Sectional Meetings—Jacksonville, January 16-18; Philadelphia, Pennsylvania, February 13-16; Milwaukee, February 27-29; Colorado Springs, Colorado, March 5-7; Little Rock, Arkansas, March 12-13; Edmonton, Alberta, April 23-25.

University of Florida, Tenth Annual Midwinter Seminar on Ophthalmology and Otolaryngology — Miami Beach, January 16-21.

Council on Industrial Health, American Medical Association, Sixteenth Annual Congress on Industrial Health—Detroit, Michigan, January 23, 24.

American College of Radiology, Annual Meeting—Chicago, February 10, 1956.

American Academy of General Practice, Eighth Annual Scientific Assembly—Washington, D. C., March 19-22.

WATTS HOSPITAL MEDICAL AND SURGICAL SYMPOSIUM

The Watts Hospital Medical and Surgical Symposium will be held at the Washington Duke Hotel in Durham on Wednesday and Thursday, February 8 and 9. The following tentative program has been arranged.

Wednesday, February 8

- 9:30—Registration
- 10:30—Welcome: Mr. Sample B. Forbus, Roy A Hare, M.D.
- 10:45—"The Importance of the Physical Examination"—Louis A. Krause, M.D., Baltimore, Maryland
- 11:30—"Radioactive Isotopes in Medicine"—James W. Carpenter, M.D., Chicago, Illinois
- 12:30—Lunch
- 2:00—"Biological Relationships of Cancer"—Harry S. N. Greene, M.D., New Haven, Connecticut
- 2:45—"Gastric Lesions in the Aged and Their Management"—Stanley O. Hoerr, M.D., Cleveland, Ohio
- 3:30—Intermission
- 3:45—"Problems Met in the Diagnosis and Treatment of Cervical Cancer"—Albert W. Diddle, M.D. Knoxville, Tennessee
- 6:00—Barbecue Dinner
- 8:00—Panel Discussion on "Recent Advancements in Management of Malignant Disease": Louis A. Krause, M.D. (moderator), Harry S. N. Greene, M.D., Stanley O. Hoerr, M.D., James W. Carpenter, M.D., Albert W. Diddle, M.D., S. Gordon Castigliano, M.D.

Thursday, February 9

- 9:30—"Treatment of Important Malignant Lesions of the Head and Neck"—S. Gordon Castigliano, M.D., Philadelphia, Pennsylvania

- 10:15—"Arthritis"—Robert W. Johnson, M.D., Baltimore, Maryland
- 11:00—Intermission
- 11:15—"Basic Principles in the Therapy of Blood Dyscrasias"—William B. Castle, M.D., Boston, Massachusetts
- 12:00—"Principles and Factors Influencing the Trend of Antibiotic Therapy"—Monroe J. Romansky, M.D., Washington, D. C.
- 12:45—Lunch
- 2:15—Clinics at Watts and McPherson Hospitals
 - (1) Surgery and Radiology: Stanley O. Hoerr, M.D., and James W. Carpenter, M.D.
 - (2) Medicine: William B. Castle, M.D. and Monroe J. Romansky, M.D.
 - (3) Orthopedics: Robert W. Johnson, M.D.
 - (4) Oncology: (McPherson's Hospital) S. Gordon Castigliano, M.D.
- 6:00—Cocktail Party and Dinner

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. Thomas W. Farmer, professor of neurological medicine, University of North Carolina School of Medicine, has been awarded a grant from the United States Public Health Service (USPHS B-581 (C2) in the amount of \$14,907.00 for the period from December 1, 1955, through November 30, 1956, for continuation studies on "An Investigation into the Spontaneous Electrical Activity of Isolated Unanaesthetized Cortical Grey Matter in the Cat."

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Dr. Bernard G. Stall, III, assistant professor of medicine, has been awarded a grant from the Atomic Energy Commission, (Federal Contract No. AT-(40-1)-2165) in the amount of \$12,294 for the period from September 1, 1955, through August 31, 1956, for the project "A Study of Ion Transport Across Smooth Muscle Cell Membrane."

* * *

Dr. Edward C. Curnen, professor and head of the Department of Pediatrics, University of North Carolina School of Medicine, has recently been appointed out to the editorial board of *Medicine*.

Dr. Edward C. Curnen represented the American Academy of Pediatrics at a meeting regarding the distribution and use of poliomyelitis vaccine at the Surgeon General's Office, Washington, D. C., on Wednesday, December 7.

* * *

Dr. George C. Ham, Chief of Psychiatric Service, North Carolina Memorial Hospital, has announced the addition of 11 new psychiatric residents to the staff of the Department of Psychiatry of the University of North Carolina School of Medicine. Of the 11 doctors, the following 10 began their terms of psychiatric residency at North Carolina Memorial Hospital on July 1, 1955:

First year residents: Dr. Franklin M. Draper, Jr., a graduate of Harvard Medical School and pre-

viously at North Carolina Memorial Hospital; Dr. Charles B. Fulghum, Jr., a graduate of the University of North Carolina Medical School and previously at Temple University Hospital; Dr. Rowland E. Fullilove, a graduate of the University of Maryland and previously at Church Home and Hospital, Maryland; Dr. Cornelius Lansing, a graduate of Harvard Medical School and previously at Massachusetts General Hospital; Dr. Barbara Moore, a graduate of the North Carolina Medical School and previously at Queen's Hospital, Hawaii; Dr. Robert E. Smith, graduate of the New York Medical College, and previously at the University of Nebraska Hospital; Dr. Robert W. Whitener, a graduate of Northwestern University and previously at Charity Hospital in Louisiana.

Second year resident: Dr. Jean H. Menetrez, a graduate of McGill University School of Medicine and previously at Military Hospital, Canada.

Third year resident: Dr. Harold J. Harris, a graduate of Long Island College of Medicine and previously at Massachusetts General Hospital and the Menninger Foundation.

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Dr. Ernest H. Wood, professor of radiology, was installed as president of the North Carolina Radiological Society recently. Dr. William H. Sprunt, assistant professor of radiology, was elected secretary-treasurer of the Society.

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Dr. Nathan Womack, professor and head of the Department of Surgery, delivered the annual Major Seelig lecture in St. Louis, Missouri recently. His subject was "Chronic Cystic Mastitis and Cancer of the Breast."

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Former surgical residents among Duke University medical alumni have appointed a committee to organize "The Deryl Hart Society" in honor of Dr. Deryl Hart, professor and chairman of surgery, it was learned here recently.

Dr. William F. Hollister, of Pinehurst, is chairman of the organizational committee.

Some 38 residents have trained under Dr. Hart, recently elected president of the Southern Surgical Association, who has been chief of the surgical service since Duke Hospital and Duke Medical School opened in 1930.

The proposed society will comprise Dr. Hart's former residents, and their purpose will be to promote surgical teaching and research, as well as adding to general knowledge in the field of surgery, through annual meetings.

Members of the committee in addition to Dr. Hollister include Dr. William W. Shingleton, Dr. William Anlyan, Dr. Clarence E. Gardner, and Dr. R. W. Postlethwait.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

At the January 23 meeting of the Bowman Gray Medical Society, members of the faculty presented a Symposium on Diabetes covering "Genetic Aspects of Human Diabetes," "Pathologic Physiology of Diabetes Mellitus," "Diabetic Pathology," "Principles of Diabetic Management," "Degenerative Complications in Diabetics," "Diabetes in Infancy and Childhood," "Diabetes in Pregnancy," and "Surgery in the Diabetic." Those participating were Dr. C. Nash Herndon, professor of medical genetics; Dr. J. M. Little, professor of pharmacology; Dr. J. H. Smith Foushee, Jr., instructor in pathology; Dr. Ernest H. Yount, Jr., professor of internal medicine; Dr. Emery C. Miller, Jr., instructor in internal medicine; Dr. Weston M. Kelsey, professor of pediatrics; Dr. Richard L. Burt, assistant professor of obstetrics and gynecology; and Dr. H. H. Bradshaw, professor of surgery.

* * *

In early January Dr. Eben Alexander, professor of neurosurgery, spoke before the Robeson County Medical Society on "Protrusions of the Cervical and Lumbar Discs." At the meeting of the Neurosurgical Society of America held in Miami, January 18-23, Dr. Alexander presented a paper on "Fractures of the Adontoid Process."

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Dr. Courtland H. Davis, assistant professor of neurosurgery, has been elected president of the North Carolina Association of Parents and Friends of Mentally Retarded Children.

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Dr. Leonard Kurland, Chief of the Epidemiology Branch of the National Institute of Neurological Diseases and Blindness of the National Institutes of Health, presented a film "Etiologic Significance of the Epidemiologic Study of Multiple Sclerosis and Amyotrophic Lateral Sclerosis." The data were assembled from studies completed on the Isle of Guam.

* * *

Dr. Richard L. Burt, assistant professor of obstetrics and gynecology, has been awarded a grant of \$1,000 by the Parke-Davis Company of Detroit for his continued studies of carbohydrate metabolism in pregnancy. Dr. Burt has been on the staff of the School of Medicine since 1949. The grant will supplement funds from the National Institutes of Health supporting the studies on problems of acute toxemia in pregnancy.

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Dr. Merrill Spencer, assistant professor of physiology and pharmacology, has been named Established Investigator by the American Heart Association. In the five-year program to begin July 1, 1956, Dr. Spencer will continue his studies of distribution of cardiac output. Dr. Spencer is a graduate of Baylor University College of Medicine. He

completed his internship at Hermann Hospital in Houston before entering military service in 1946. His graduate training was completed at Western Reserve University Medical School and Crile Veterans Hospital in Cleveland. He joined the faculty of The Bowman Gray School of Medicine in 1951.

NORTH CAROLINA HEART ASSOCIATION

Answers to questions about heart disease were given by three medical specialists at a public forum on December 14 at 8 p.m. in the Lenoir County Court House. Doctors Edward S. Orgain and E. Harvey Estes, Jr. of Duke University and Dr. Myron G. Sandifer of the University of North Carolina spoke on therapy for hypertension, diet and arteriosclerosis, and the psychologic aspects of treating heart disease, after which the floor was open for questions from the audience.

Preceding the public meeting, at 4 p.m., the same speakers appeared in the Fairfield Community Center at a meeting of the Lenoir County Medical Society to talk to local physicians and those from surrounding counties.

Both meetings were sponsored jointly by the Lenoir County Medical Society and the Lenoir County Heart Committee, of which Dr. Vernon D. Offutt is chairman. Serving with Dr. Offutt on this committee are Dr. Rose Pully, Dr. Joe Bower, Dr. L. E. Williams, Dr. P. E. Dunning, Dr. Paul Whitaker, Mrs. Raymond Jarman, Mrs. B. Morgan, Mrs. Miriam S. Katz, Mrs. Mary L. Wilson, Mrs. C. S. Carr, Jack Rider, and Jack P. Hankins.

EDGECOMBE-NASH MEDICAL SOCIETY

The regular meeting of the Edgecombe-Nash Medical Society was held in Rocky Mount on Wednesday evening, December 14.

At the November meeting Dr. R. D. Kornegay presented as guest speaker Dr. S. P. Perry, chief radiologist at Watts Hospital, who spoke on "Radioactive Isotope Therapy." The Society voted to continue the Cancer Clinic for a year.

There was no scientific program, owing to the election of officers.

NEWS NOTES

Dr. M. D. Bonner has announced the opening of offices at 1023 North Elm Street, Greensboro. His practice will be limited to diseases of the chest, including respiratory allergy and endoscopy.

INTERNATIONAL COLLEGE OF SURGEONS

Sectional Meeting

The International College of Surgeons will hold a sectional meeting at the Greenbrier Hotel in White Sulphur Springs, West Virginia, February 12 to 15, 1956. The profession is cordially invited to attend and doctors are urged to bring their wives.

According to Dr. E. G. Gill, International College of Surgeons State Regent for Virginia, the world famous Greenbrier Hotel is exerting extra effort to make the gathering a success and is giving those in attendance benefit of a special holiday rate.

SOUTHEASTERN SURGICAL CONGRESS

The twenty-fourth annual assembly of the Southeastern Surgical Congress will be held at the John Marshall Hotel, Richmond, Virginia, March 12-15. Included in the roster of speakers are the following North Carolina surgeons: Dr. Howard H. Bradshaw, Winston-Salem; Dr. Walter E. Daniel, Charlotte; and Drs. Kenneth L. Pickrell and Nicholas Georgiade of Durham.

In addition to individual papers, panel discussions will be held on bones, the stomach, the colon, and the blood vessels.

ATLANTA GRADUATE MEDICAL ASSEMBLY

Attracting wider attendance and acclaim in medical circles each year, the Atlanta Graduate Medical Assembly, scheduled for February 20-22, has streamlined and sharpened its agenda to incorporate the features which have attracted most favorable comment from the growing numbers of doctors who have been attending each year.

Dr. A. Cullen Richardson of Atlanta, this year's chairman, promises another excellent speaking faculty, a feature that has been possibly the most outstanding attraction in the past.

"In addition, this year we have made a stronger attempt to group the speakers and discussion forums on each separate specialty and field of interest to practitioners, into a unified correlated 'package,' allowing those visiting doctors most interested in one specific field to attend and participate in the coverage of this field in a concentrated dose," Dr. Richardson stated. "Also this year, we are lengthening the time allowed for lunch and scheduling some of our 'round table forums' to convene around the luncheon table, thus allowing more time for a leisurely luncheon meal and at the same time the opportunity to combine a little business with pleasure," Dr. Richardson added.

Other high lights of the Assembly include a more extensive social and entertainment program, especially those activities planned for the visiting doctors' wives, than ever before. Atlanta, known throughout the country for its hospitality, has gone all-out from the standpoints of both the large group of host physicians and medical associations themselves, and the non-medical people and entertainment facilities of the city itself, to welcome the nearly 2,000 doctors from all over the country who are expected.

UNITED CEREBRAL PALSY

Dr. Sidney Farber, professor of pathology, Harvard Medical School, has been named life chairman of the United Cerebral Palsy Research Advisory Board. The unprecedented honor was announced at the UCP sixth annual convention, after Dr. Farber had presented the 1955 Max Weinstein Award for outstanding scientific achievement in cerebral palsy to Dr. Paul I. Yakovlev, clinical associate professor of neuropathology, Harvard Medical School.

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

Annual Prize Essay

To stimulate interest in the field of physical medicine and rehabilitation, the American Congress of Physical Medicine and Rehabilitation will award annually a prize for an essay on any subject relating to physical medicine and rehabilitation. The contest, while open to anyone, is primarily directed to medical students, interns, residents, graduate students in the pre-clinical sciences and graduate students in physical medicine and rehabilitation.

The following rules and regulations apply to the contest:

1. Any subject of interest or pertaining to the field of physical medicine and rehabilitation may be submitted.

2. Manuscripts MUST BE in the office of the American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, not later than June 1, 1956.

3. Contributions will be accepted from medical students, interns, residents, graduate students in the pre-clinical sciences, and graduate students in physical medicine and rehabilitation.

4. The essay must not have been published previously.

5. The American Congress of Physical Medicine and Rehabilitation shall have the exclusive right to publish the winning essay in its official journal, the *Archives of Physical Medicine and Rehabilitation*.

6. Manuscripts must not exceed 3000 words (exclusive of headings, references, legends for cuts, tables, etc.), and the number of words should be stated on the title page. An original and one carbon copy of the manuscript must be submitted.

7. The winner shall receive a cash award of \$200, a gold medal properly engraved, a certificate of award and an invitation to present the contribution at the 34th Annual Session of the American Congress of Physical Medicine and Rehabilitation at The Ambassador, Atlantic City, New Jersey, September 9-14, 1956.

8. The winners shall be determined by the Annual Awards Committee composed of four members of the American Congress of Physical Medicine and Rehabilitation.

9. All manuscripts will be returned as soon as possible after the name of the winner is announced.

10. The American Congress of Physical Medicine and Rehabilitation reserves the right to make no award if, in the judgment of the Prize Lecture Committee, no contribution is acceptable. The Congress may also award certificates of merit to contributors whose essays may be considered second and third best submitted. Announcement of the winner will be made after the annual meeting. Officers and members of the American Congress and The American Academy of Physical Medicine and Rehabilitation are not eligible for this award.

* * *

The thirty-fourth annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held September 9-14, 1956 inclusive, at The Ambassador, Atlantic City, New Jersey.

Scientific and clinical sessions will be given September 10-14. All sessions will be open to members of the medical profession in good standing with the American Medical Association.

In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association.

Full information may be obtained by writing to the executive secretary, Dorothea C. Augustin, American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, Illinois.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Problems of Medical Education on Congress Docket

The role of advanced training in the over-all medical education picture will be discussed during the opening session of the fifty-second annual Congress on Medical Education and Licensure to be held February 11-14 at the Palmer House, Chicago. The meeting will be sponsored by the A.M.A.'s Council on Medical Education and Hospitals, the Federation of State Medical Boards of the United States, and the Advisory Board for Medical Specialties.

Special attention will be paid to current problems in residency training such as the basic science content of a residency program, the organization and administration of a residency program, and the psychiatric viewpoint in training residents during the all-day sessions on Saturday, February 11. An open meeting of the Advisory Board for Medical Specialties will be held Sunday morning, with an open meeting of the Federation of State Medical Boards in the afternoon. Monday's sessions will be devoted to discussions of trends in specialization, problems relating to clinical faculty appoint-

ments and the private practice of medicine, and new approaches in medical education. The February 14 program will be conducted by the Federation.

More than 500 medical educators, officers and members of state licensing boards and others interested in medical education are expected to attend the four-day conference.

* * *

Conference on Rural Health Slated for March

"Your Doctor and You" will be the theme of the eleventh National Conference on Rural Health sponsored by A.M.A.'s Council on Rural Health, March 8-10 at the Multnomah Hotel, Portland, Oregon. Chief topics to be discussed include: the family physician, mental health, programs for older people, prepaid medical care, and successful community enterprises. Ample time will be devoted to discussion and group participation.

An informal pre-conference session will be held for physicians only on Thursday morning, March 8, beginning at 9 a.m. Principal topic of discussion will be the relationship and responsibilities of a family doctor to his patients.

* * *

First Regional Standard Nomenclature Institute

So that persons in various parts of the country will have an opportunity to attend "brush up" courses on the use of the **Standard Nomenclature of Diseases and Operations**, the American Medical Association has scheduled its first regional Standard Nomenclature Institute in February. The Institute will be held February 6, 7, 8 at the Hotel Dennis, Atlantic City, New Jersey, and will offer expert instruction and helpful suggestions on the best ways of utilizing the **Nomenclature** in the hospital, doctor's office or clinic. Lectures on theory will be given by Adaline C. Hayden, C.R.L., associate editor of **Nomenclature**, A.M.A., and on anatomy by Edward T. Thompson, M.D., chief of programs operations, hospital facilities, U.S. Public Health Service, Washington, D. C.

Registration, limited to the first 100 applicants, is not restricted to registered medical record librarians. Anyone planning to install the system or already using it and employed as clinic clerks, doctor's secretaries or receptionists, nurses and physicians may attend. Tuition is free. Applications should be sent to Mrs. Hayden at A.M.A. Headquarters in Chicago.

It is contemplated that regional institutes will be held on an annual basis. Another institute will be held at A.M.A. headquarters in the fall.

* * *

A.M.A. Announces 1956 Radio Plans

The American Medical Association's new radio transcription series will be livened up with music during 1956, the Bureau of Health Education announces. The Bureau plans to release three new series of 13 programs each for use by medical societies over local radio stations. The first will feature "music with your meals" theme, with an in-

strumental trio rendering folk songs, ballads and semi-classics. Dr. W. W. Bauer, Bureau director, will give the medical commentary based on 13 different phases of diet and nutrition.

The second series, also on a musical theme, will be entitled "Summer Serenade" and will deal with summer situations such as having fun while avoiding illness and accidents. This series is intended as a replacement for previous series dealing with summer health topics. The format and subject matter for the third series have not been selected as yet, although it will be either musical or dramatic in character.

Probable release dates for the new program will be April 1, August 1, and November 1. More specific details will be announced later.

* * *

New Booklets for Medical Societies

Two booklets of vital interest to medical societies will be published by the American Medical Association early in February. The first—"Guides for Medical Society Grievance Committees"—reviews the findings and recommendations of the special committee on grievance committees appointed by the Board of Trustees. The second publication—"Report of the Survey on County Medical Society Activities"—will include data on society meetings, budgets, educational and scientific programs, personnel, building facilities, the work of various kinds of committees, and the extent of public relations activities.

Copies of both booklets will be mailed to each state and county medical society. Additional copies will be available on request from the Council on Medical Service.

HARVARD UNIVERSITY SCHOOL OF PUBLIC HEALTH

Scholarships for the Academic Year 1956-1957 will be granted by the Harvard School of Public Health to individuals of high professional promise in awards ranging from part tuition to tuition plus a stipend, according to the qualifications and financial needs of the applicants. The Scholarship Funds are limited and are primarily intended for citizens of the United States. In general, preference will be given to applicants under 35 years of age.

Scholarships are available to those in the following categories who wish to obtain postgraduate education in the field of public health or in one of the basic sciences related to public health: physicians, dentists and veterinarians; industrial physicians; public health nurses with a college degree and satisfactory field experience; social workers with a master's degree from an approved school of social work and acceptable experience in the field of medical or psychiatric social work; health educators with a college degree, training either in

health education or in the natural and social sciences and experience in general education or community health work; dietitians with a college degree and satisfactory field experience; college graduates who have concentrated in one of the natural sciences or in engineering (environmental aspects), for example, biologists, biochemists, nutritionists, microbiologists, parasitologists, or biostatisticians.

Scholarship applicants must be eligible for admission to the School as a candidate for one of the following degrees: **Master of Public Health, Doctor of Public Health, Master of Science in Hygiene, Doctor of Science in Hygiene, Master of Industrial Health.**

A catalogue of the school, admission and scholarship applications, and further information may be obtained by writing the Secretary, Harvard School of Public Health, 55 Shattuck Street, Boston 15, Massachusetts.

Scholarship applicants must return completed admission and scholarship applications to the Harvard School of Public Health by **March 1, 1956**. Scholarship awards will be announced May 1, 1956. Under exceptional circumstances awards will be made at other times.

PROFESSIONAL ASSOCIATION ON ALCOHOLISM

The new Professional Association on Alcoholism was organized at a recent meeting at the Massachusetts Medical Society, set up on a national scale, and opened to doctors, nurses, hospital administrative staffs, enforcement, correctional and penal officials, social workers, occupational therapists, research workers, counselors, and others active in the treatment, rehabilitation, and prevention programs in the field of alcoholism.

More than 50 persons attended the first meeting, at which it was voted to appoint a research committee and communicate with officials of foundations for the purpose of studying the possibilities of raising funds for research under the auspices of the new association.

Since the membership is NOT confined to the Boston and New England areas, inquiries concerning membership and programs of the new association are welcomed by the new secretary-treasurer, Dr. David Landau, medical director of the Boston Committee on Alcoholism, 419 Boylston Street, Boston, sponsor of the new association, Dr. Landau is also instructor in psychiatry at the Tufts Medical School and New England Medical Center.

Dr. James I. Roberts, medical director of the New England Electric System and New England counselor of the Industrial Medical Association, was elected president of the new group. Dr. Robert Fleming, instructor in psychiatry at Harvard Medical School and head of the Alcoholic Clinic at Peter Bent Brigham Hospital, Boston, was named vice president.

The new Professional Association on Alcoholism is only one of the many activities of the Boston

Committee on Alcoholism, organized to help **any human being** in trouble with alcohol, **without charge or obligation!** Since the Boston Committee was founded 10 years ago, under the direction of Mrs. Elizabeth D. Whitney, the dedicated group at 419 Boylston Street, Boston, has led 6000 alcoholics toward recovery!

AMERICAN COLLEGE OF GASTROENTEROLOGY

The American College of Gastroenterology, composed of specialists in internal medicine and allied medical specialties, announces the reappointment for five years of its executive secretary, Mr. Daniel Weiss of Flushing, New York.

Mr. Weiss, a native New Yorker, has been with the American College of Gastroenterology in various capacities since 1938, and after a leave of absence for military service from 1941 to 1945, returned to take over the position of executive secretary. He is also managing editor of the **American Journal of Gastroenterology**.

AMERICAN HEARING SOCIETY MOVES

National headquarters of the American Hearing Society are now located at 1800 H Street, N.W., Washington 6, D. C., as of January 1, 1956. The agency has occupied offices at 817 14th St., N.W., in Washington since 1948.

Attractive, conveniently arranged, and providing improved working conditions for the staff, the headquarters include a reception room, secretaries' bay, six private offices, conference room, department for mailing literature and handling **Hearing News** subscriptions.

The new headquarters are located in a remodeled building, whose owners re-decorated and subdivided the twelfth-floor space to specifications of the American Hearing Society's executive director, Crayton Walker. All of the offices are air-conditioned.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The American College of Chest Physicians, an international society, has announced that its fourth International Congress on Diseases of the Chest, sponsored by the Council on International Affairs of the College, will be held in Cologne, Germany, August 19 through 23, 1956.

Chancellor Konrad Adenauer is the honorary president of the Congress, and one of Germany's most famous scientists, Dr. Gerhard Domagk, who received the Nobel Prize for his discovery of the sulfonamides, is president.

The scientific program to be presented at the Congress is now being organized and physicians having carried out original work in diseases of the chest (heart and lungs) which they wish to present, are invited to send outlines of their studies to Dr. Andrew L. Banyai, Chairman, Committee on

Scientific Program, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois, U.S.A. Physicians who have motion pictures or exhibits dealing with heart and lung disease are also requested to submit complete data to the committee. All requests for places on the scientific program will be given due consideration.

The Hon. Ernst Scherwing, mayor of Cologne, extends a cordial invitation to physicians and surgeons throughout the world to attend this congress on chest diseases. Further information may be obtained by writing to the Executive Offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois, U.S.A.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

More than 1,200 of the countries leading obstetricians and gynecologists were expected to register for the three days of scientific sessions at the fourth annual clinical meeting of the American Academy of Obstetrics and Gynecology which was held at the Conrad Hilton Hotel, Chicago, December 12-14, 1955.

Officers of the Academy are: president, William F. Mengert, M.D., Chicago, Illinois; president-elect, Ralph E. Campbell, M.D., Madison, Wisconsin; vice presidents, Donald G. Tollefson, M.D., Los Angeles, California, and Clyde L. Randall, M.D., Buffalo, New York; secretary, C. Paul Hodgkinson, M.D., Birmingham, Michigan; assistant secretary, Charles D. Kimball, M.D., Seattle, Washington; treasurer, Herbert E. Schmitz, M.D., Chicago, Illinois.

Included among the district chairmen is Dr. Frank Lock of Wiston-Salem.

WORLD HEALTH ORGANIZATION

Approximately 10 million children in five countries have been vaccinated against poliomyelitis with no ill effects, apart from the comparatively few cases in the United States which were traced to the use of certain batches of faulty vaccines.

Polio vaccine of the Salk type has been shown to give good protection to children between the ages of 6 to 10 years. This is the only age group for which sufficient evidence is available to allow a definite opinion to be expressed. It is not yet possible to say how long the immunity conferred by vaccination can last.

These facts were brought out by the Study Group on Poliomyelitis Vaccination called by the World Health Organization (WHO) for a five-day meeting in Stockholm. A 40-page report was prepared by the Group and will be submitted to the Director-General of the World Health Organization; he will decide how it can best be used for the guidance of health authorities all over the world.

A program of research into the cause and prevention of heart disease should be undertaken on international lines under the auspices of the World Health Organization (WHO) according to the recommendations made by the WHO Study Group on Atherosclerosis which met in November in Geneva, Switzerland, under the chairmanship of Dr. Herman Hilleboe, New York State Commissioner of Health.

The disease recommended for special investigation, "because of its paramount importance as a public health problem," is ischemic heart disease, defined by the WHO Study Group as "the cardiac disability, acute and chronic, arising from reduction or arrest of blood supply to the myocardium . . . the result of disease processes in the coronary arterial system. The main pathologic processes involved are atherosclerosis and thrombosis of these vessels."

The most clearly recognized types of ischemic heart disease are myocardial infarction due to coronary obstruction (angina pectoris).

The Study Group admitted that there is as yet no clear or scientific evidence to show that any particular factor causes this disease or contributes to its development. They agreed, however, that quite a number of factors are probably at work simultaneously, and that their action differs according to the individual and to his social or ethnic group.

* * *

Pan American Sanitary Bureau

The Government of Guatemala has this month signed an agreement with the Pan American Sanitary Bureau, Regional Office of the World Health Organization, governing the arrangements for holding the ninth meeting of the Pan American Sanitary Organization's Directing Council in Guatemala, September 16 through 29, 1956. The meeting will sit simultaneously as the WHO Regional Committee for the Americas. The Government's invitation to the Organization to meet next autumn in Guatemala was accepted at the eighth council meeting in Washington last September.

The conference will be held in the building of the University of San Carlos, in Antigua, located some 20 miles from the Republic's capital, Guatemala City. The agenda will include a review of public health activities carried on during the preceding year throughout the Americas with the cooperation of the Pan American Sanitary Bureau. Programs and budget for 1957 will be studied and adopted. Of particular concern will be the status of the Bureau-sponsored program approved by the American Republics for the complete eradication of malaria from the hemisphere, a program that has gotten well underway in 1955 and is scheduled to be intensified and extended to embrace all the remaining malarious areas of the Americas.

The Month in Washington

The second session of the eighty-fourth Congress is underway, and in medical legislation—as in all other fields—this promises to be much livelier than last year's deliberations.

For one thing, neither the Republican administration nor the Democratic party, which is in control on Capitol Hill, got anywhere near as much as it wanted last year in medical legislation.

For another thing, and something that shouldn't be lost sight of at any time, both parties this year will be legislating with one eye cocked toward next November, when the voters make a choice between the two parties. Try as they might to pass laws for the good of all the people, neither party can afford to ignore the political realities of the situation: each will want to take credit for any legislation with popular appeal or, where that is impossible, at least to see that the other party doesn't get the credit.

In front of this political mosaic, these are some of the medically important issues that will be fought out in Senate and House:

1. *Federal guarantee of mortgages on health facilities.* This has been on the Congressional calendar for two years; it was pushed hard in 1954, and was given some consideration in 1955. It would mean that the federal government would underwrite mortgages for hospitals, clinics and nursing homes, under certain conditions, thereby allowing some sponsors to obtain loans they couldn't otherwise get, or to obtain them on longer terms and with lower interest.

2. *Federal grants for research facilities.* Under this plan—approved last session by the Senate—the U.S. would make outright grants to laboratories, medical schools and clinics for building facilities for research in specific diseases, such as cancer and heart disease.

3. *Federal aid to medical education.* This perennial project probably is closer to Congressional enactment now than ever before. The most popular bill is one restricting the federal role to grants for building and equipment, with a financial incentive held out to those schools willing to increase their en-

rollment. This bill may be tied in with some other grants bill, such as the one for research.

4. *Salk vaccine.* Legislation authorizing federal appropriations for the purchase of Salk poliomyelitis vaccine (\$30 million for the current year) expires February 15, virtually insuring Congressional action of some sort before that date. One issue is whether the federal government should continue the grants; more controversial is the question of whether the U.S. should move in to control the allocation and distribution of the vaccine. Allocation and distribution now are handled under a voluntary program supervised by the U.S. Public Health Service.

5. *Increases in federal appropriations for medical research.* Over the last few years—since the National Institutes of Health came of age—Congress repeatedly has increased research grants over the amounts the Budget Bureau allowed Public Health Service to request. Indications are that this year the Budget Bureau may have to give way and allow important increases to be requested of Congress. Congress probably would want to add on its own special additions anyway, resulting in more money than ever before available for work on cancer, heart disease, mental illness, arthritis, blindness, and the many other conditions.

6. *Old Age Security Insurance.* OASI-covered persons could receive payments beginning at the age of 50 if determined to be disabled. Under present law retirement payments for all are available at age 65. The bill containing this provision (H.R. 7225) passed the House last session by an overwhelming margin. It is now before the Senate Finance Committee, where the next phase of the legislative contest will be fought out in 1956.

The lop-sided House vote on disability payments may be discounted in part because of the parliamentary maneuvering by sponsors of the legislation. House members had only 40 minutes to debate this bill, and no opportunity to amend it. It was a case of accepting the whole bill—which contains a number of other social security liberations not of medical significance—or being politically damned as opposed to social security *per se*.

The American Medical Association maintains that the present expanding rehabilita-

tion programs would be undermined by cash payments for disability, that the financial and other long-range aspects of the disability payments plan have not been thoroughly studied, and that the machinery for disability payments would inevitably project the federal government deeply into the medical care picture.

BULLETIN BOARD

(CONTINUED FROM PAGE 50)

HAWAII MEDICAL ASSOCIATION

Members of the Hawaii Medical Association are celebrating their organization's one hundredth anniversary, April 22 to 29, in proper "Hawaii" as well as medical fashion. There will be a short but worthwhile professional program on Monday and Tuesday mornings, a spectacular centennial celebration pageant Tuesday night, and a traditional luau (Hawaiian feast to you Easterners) Thursday night, with Polynesian entertainment. A cordial invitation is extended to physicians in the United States to attend the centennial program in America's island paradise.

The meeting follows the American College of Physician's session in Los Angeles. Write the Hawaii Medical Association, 510 South Beretania Street, Honolulu 13, Hawaii, for reservations application forms.

UNITED STATES ATOMIC ENERGY COMMISSION

Lewis L. Strauss, Chairman of the U.S. Atomic Energy Commission, has announced that a Medical Research Center, including a nuclear reactor designed specifically for medical research and treatment, will be constructed at Brookhaven National Laboratory. Brookhaven, one of the AEC's major research laboratories, is operated by Associated Universities, Inc.

Scheduled for completion in two years, at a cost of \$6,000,000 exclusive of design and engineering, the new facility will house a nuclear reactor, a research hospital, an industrial medicine branch, and research divisions in medical physics, pathology, microbiology, biochemistry, physiology, and clinical chemistry.

VETERANS ADMINISTRATION

Dr. James D. Murphy, chief of surgical service at the Veterans Administration hospital in Oteen, North Carolina, has been appointed manager of the VA hospital at Baltimore, Maryland, VA announced. Dr. Murphy will succeed Dr. Theodore R. Dayton who will retire. The Baltimore hospital is a 289-bed institution for the care of tuberculous patients.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The First International Symposium on Venereal Diseases and the Treponematoses will be held at the Statler Hotel, Washington, D. C., from May 28 through June 1, 1956, Surgeon General Leonard A. Scheele announced recently. The symposium will be sponsored by the Public Health Service, U.S. Department of Health, Education, and Welfare, and the World Health Organization.

Commenting on the forthcoming meeting, Dr. Scheele said that this symposium will afford an excellent opportunity for authorities in the field from all over the world to exchange ideas and information on the latest developments in research, diagnosis, treatment, and case finding of the venereal and treponemal diseases.

The symposium is open to all physicians, scientists and professional health workers interested in participating. Anyone interested in submitting a paper for consideration by the Program Committee should send an abstract of his paper to Dr. C. A. Smith, Medical Director, Chief, Venereal Disease Program, Division of Special Health Services, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C., as soon as possible. Accepted papers may be presented in person or by an alternate. All abstracts to be considered for the program must be received no later than February 1, 1956.

The working languages of the symposium will be French, Spanish, and English. Arrangements are being made for simultaneous interpretation of papers in all three languages during the course of the meeting.

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE

The fifth Congress of Pan American Medical Women's Alliance will be held in Santiago and Vina del Mar, Chile, March 6-14, 1956. Opportunities for sight seeing and visits to medical programs in Mexico, Salvador, Panama, Chile, Bolivia, and Peru have been arranged.

Information may be obtained from the secretary, Dr. Eva F. Dodge, 2124 West 11th Street, Little Rock, Arkansas, or from the program chairman, Dr. Eva Cutright, Wooster, Ohio.

Classified Advertisements

WANTED—Assistant Resident Ophthalmological Service, N. C. Memorial Hospital, Chapel Hill, N. C. Address inquiries to: Chief, Division of Ophthalmology, Department of Surgery, School of Medicine, U.N.C., Chapel Hill, N. C.

NORTH CAROLINA

Medical Journal



Vol. 17 No. 2
February, 1956

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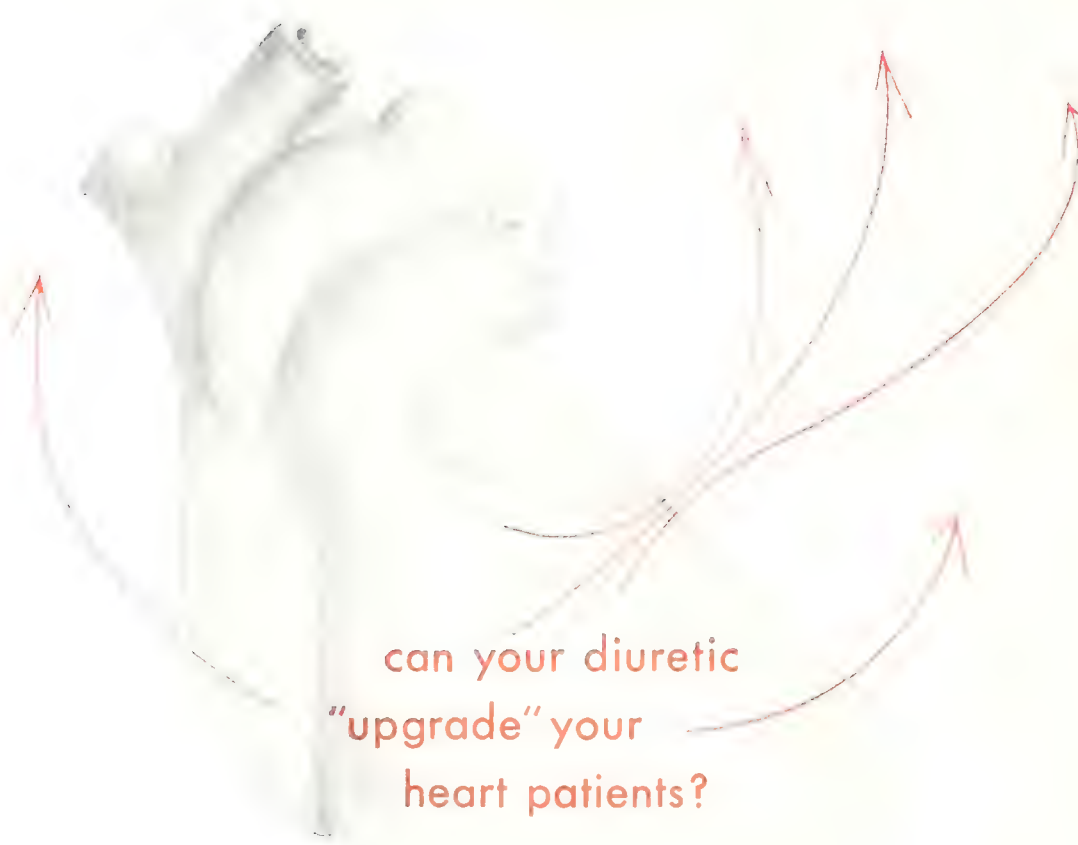
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The Pinebluff Sanitarium, Pinebluff, N. C.
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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 17

FEBRUARY, 1956

NUMBER 2

The Management of Acute and Chronic Intestinal Diseases

PHILIP W. BROWN, M.D.

ROCHESTER, MINNESOTA

Among the common diseases of the intestine that are encountered in the North Temperate Zone, I will mention some which have long been problems and which I would like to present for consideration as the search continues for better methods of diagnosis and treatment.

Common Acute Intestinal Diseases

The most widespread and frequent acute disease of the bowel is virus enterocolitis, commonly spoken of as "the stomach or intestinal flu." Then, in descending order of frequency, are salmonella, shigella and staphylococcus infections; and perhaps, as a final group, parasitic infestations of *Endamoeba histolytica* and schistosomiasis should be included.

Virus enterocolitis

Acute enterocolitis has definitely been proved to be due to a virus that is disseminated by the usual fecal-oral mode. In a household it seems to spread directly from person to person. The patient is acutely ill and miserable, but the disease is usually short-lived. There may be some value in allowing the patient to have several bowel movements "to sweep out the infection." When advice is sought, however, I see no need to delay symptomatic relief. The patient has already passed several stools or a physician would not have been called. Either

1 or 2 teaspoonfuls of paregoric with water or 1/2 grain of codeine sulfate is prescribed, to be repeated every one or two or more hours until symptoms have abated.

The attack frequently lasts about 12 to 24 hours. During this brief sharp storm, one need not worry over diet; liquids or simple foods are given as desired. Occasionally the attack may be so severe that the patient loses enough fluid to require intravenous administration of 1 or 2 liters of a solution containing glucose and salt. If two or three doses of paregoric or codeine do not check the symptoms or if vomiting occurs, 32 to 64 mg. (1/2 to 1 grain) of codeine or 10 to 16 mg. (1/6 to 1/4 grain) of morphine should be given hypodermically. If symptoms persist after 48 hours, even though they are less violent, examinations of the stool for pathogenic parasites or bacteria should be ordered. Also, proctoscopic and radiologic studies should be considered. An awareness of "what is going around" in the community often proves helpful.

Persistence of intestinal symptoms for some days and even weeks after an acute attack of enterocolitis is not uncommon. Certainly in such patients, studies of the stool, together with proctoscopic and radiologic examinations, must be done. If results of these studies and examinations are negative, the patient should be reassured that the irritability of the bowel will subside. He should be advised to eat whatever seems to agree with him, and also to take 32 mg. (1/2 grain) of phenobarbital two to four times daily. The main thing is the reassurance that "nothing else" is wrong and that the symptoms will subside.

Read at the annual meeting of the Matheson Foundation, Charlotte, North Carolina, November 1, 1955.

From the Section of Medicine, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.

Salmonella

Salmonella infections, with the exclusion of typhoid fever, which is omitted in this discussion, are to be suspected if several persons of one group are stricken with cramps and diarrhea. Two illustrations will suffice to suggest the cause as being related to something eaten by the patient. First is an episode in a hospital in New Guinea. Some slices of surprisingly good beef had been left on a kitchen table, and remained there all night. The morning mess crew came in, and five or six of the men proceeded to make beef sandwiches. Within a few hours all were acutely ill. Cultures from the vomitus and the stools of these men revealed salmonella organisms.

A second illustration is that of a reception held in the month of August. The chief delicacy was salmon salad, which had been prepared in the morning for consumption in the afternoon. It had been placed in a cool pantry, but not in a refrigerator. After the guests had eaten and gone home and the catering staff had left, reports that some of the guests were suffering from acute gastroenterocolitis began to come in; 39 persons were known to be rather ill. The second cook, who was fond of salmon salad and had eaten generously of the dish, was very ill. He had saved some of the salad to take home to his cat. The cat smelled the delicacy but refused to eat, much to the cook's disgust. Four of the 39 patients were admitted to the hospital that night, prostrated by diarrhea, vomiting, and loss of fluid. Cultures were promptly obtained and, on suspicion, chloramphenicol in doses of 250 mg. was administered. *Salmonella montevideo* proved to be present. The four hospitalized patients received chloramphenicol, and within 48 hours were much better. The incubation period for most of the salmonella organisms varies from 4 to 48 hours, except for *Salmonella typhosa*, which has a longer period of incubation.

Shigella

Infection with organisms of the shigella group is usually acquired from infected water or food by way of the fecal-oral route, but it also may come from contact with an infected person. After ingestion of the bacilli, the incubation period is usually 6 to 24 hours, depending as always on the amount

and virulence of the germ and the susceptibility of the recipient. Isolated instances of bacillary dysentery are not as easy to identify as is an outbreak in a group or camp.

While the immediate treatment is the same as for any acute diarrhea, cultures of the stool disclose the true nature of the disease within one or two days. The fecal discharges may be rapidly sterilized and toxicity may be decreased by the administration of 250 mg. of Neomycin and 50 mg. of Terramycin every four hours for four doses and then every six hours for three to five days. Sulfadiazine has proved helpful, although it is less effective than the antibiotics. Certainly it does decrease toxic symptoms of the dysentery and sterilizes the stool, thus protecting attendants. The initial dose is 2 Gm., followed by 1 Gm. every four hours for three or four days as needed. With the administration of sulfadiazine, one must be certain that the patient drinks enough fluids to yield an output of 1,500 cc. of urine daily.

Staphylococcus

Staphylococcal enterocolitis used to result from ingestion of infected foods, especially in hot weather, and from eating certain foods not protected by refrigeration. The well known examples are custard pies and puddings.

In the past few years we have encountered another variety of acute and often fatal poisoning by staphylococcus. This frightening and acute diarrhea comes on the heels of taking antibiotics, usually the tetracyclines^(1,2). In most of the cases that I have encountered, the patients have been recovering from operation, but numerous instances in medical cases, usually in pneumonitis, have been noted.

In food poisoning, the victims often receive a single dose of enterotoxin that was already produced in the food prior to its ingestion. Although large numbers of the staphylococci also will be ingested, they do not have time to multiply fast enough to produce much more enterotoxin in the bowel. Before the growth of bacteria occurs, the patient is already having symptoms of vomiting and diarrhea due to the pre-ingested toxin, even to the point of shock. In the emergency the parenteral administration of fluids and codeine or morphine usually tides the patient over this explosion. If the

physician has an inkling of the cause of this sharp illness, stained smears of vomitus or stool may disclose numerous gram-positive micrococci, and certainly cultures will do so. In such cases of food poisoning, parenteral doses of penicillin or erythromycin will prove rapidly effective.

Staphylococcal or micrococcal enteritis may develop after the administration of antibiotics which have suppressed the normal intestinal flora and favored the growth of the antibiotic-resistant micrococci. In such instances the patient's body provides a medium for growth of the germ, with a continuing production of both enterotoxin and bacteria. In typical cases, the patient has either been under treatment for pneumonia or is convalescing from a surgical procedure. The time interval from the onset of antibiotic therapy to the development of symptoms varies, but as a rule it is not less than three or four days; however, it may be two weeks after an operation for which preoperative antibiotics were given. In the surgical cases, histories frequently show that the patients have eaten poorly after operation, and that the intake of meat has been especially low.

While the first symptoms are merely abdominal pain and unrest, a rapid and often frightening development of diarrhea may follow. The bowel actually squirts and pours out fluid, such as is described in cholera patients. This outpouring of fluids, together with a rise in temperature, is both dramatic and terrifying. The slightest warning of these signs should prompt rapid and ample replacement of fluids and electrolytes intravenously. Smears of the stool or vomitus are stained for the presence of the micrococci. Of course, cultures should be taken at the same time. If it has not already been given, erythromycin should be administered by mouth in doses of 300 to 500 mg. every four to six hours. Neomycin is also effective in doses of 250 mg. every four hours. Also bacitracin is given orally in doses of 5,000 to 20,000 units every six hours.

Staphylococcal infections have always been resistant. Penicillin has proved effective in controlling them, but in the six years previous to this report 50 per cent of all pathogenic strains have become resistant to it. It is not easy to identify pathogenic micrococci in carriers or in cultures of any material. The report of a positive smear or

culture, unless adequately studied, is not proof of a pathogenic strain. In a hospital population, an increasing number of both workers and patients have pathogenic staphylococcal infections in the nose; of 54 patients and 209 contacts in the hospital, 74 per cent of the patients and 33 per cent of the attendants carried resistant strains of micrococci.

This is another reason why antibiotics should not be used indiscriminately, as for common colds or vague aches and pains. In the preparation of patients for intestinal operation, our present program, which lasts 48 to 60 hours, includes the oral administration of 250 mg. of Neomycin and 50 mg. of Terramycin every 6 hours. Added to this schedule is the usual program of rectal irrigations, saline laxative, and low-residue diet. Thus far this regimen has helped the patient to escape the tragedy of micrococcal enterocolitis; quite surely, resistant strains will again appear, and another weapon will be found.

Diverticula of the colon

Diverticula of the entire gastrointestinal tract are common. Certain congenital, true diverticula involve all coats of the intestinal tube. These are much less common than the acquired type; they are found with increasing frequency among patients who have passed their fortieth year and predominantly in the lower left portion of the colon. At least 10 per cent of the people more than 40 years of age and, I think, probably 25 per cent of those more than 50 are found to have diverticula of the colon. The sacs or pouches are really herniations of the intestinal mucosa and submucosa through weakened portions of the intestinal wall, usually at the site of the entrance of blood vessels. They are commoner in men than women in a ratio of 1.6 to 1, and commoner in obese people.

A series of 47,000 consecutive barium enemas⁽³⁾ showed 4,000 people of all ages to have diverticula; 600 had evidence of diverticulitis, of whom 144 required an operation. In one sense this would suggest that 144 of 4,000 people having diverticula (3.6 per cent) will require operation. This figure, while still high, is probably a fair indication of the relative infrequency of patients requiring operation for diverticula of

the colon. The other figure of 600 people who had diverticulitis of the colon and of whom 144 required operation is not a true reflection of the over-all incidence of diverticulitis. Certainly a fourth of the patients having diverticulitis do not require operation. Actually only about 10 per cent of a large group of patients having diverticulitis underwent surgical procedures.

We know that diverticulosis produces no symptoms. If inflammation ensues, then symptoms do occur: pain, fever and obstructive signs in two thirds of the cases, and inflammatory signs in a third. Bleeding from the bowel should rarely be held as a symptom of diverticulitis; while it may and can occur, it is really a most uncommon symptom. Fistulas, either through the abdominal wall or into adjacent viscera, developed in 42 per cent of the surgical group. Voiding of gas is *prima facie* proof of a fistula into the bladder.

The medical management of diverticulosis, though minimal, is wise from a prophylactic viewpoint. These patients should avoid eating hard particles, sometimes called "cinders," such as nuts, big seeds as in grapes, and large berry seeds. Also, it is wise for them to take a swallow of 1 or 2 drams of mineral oil two or three nights a week.

The treatment for diverticulitis includes rest in bed, the application of heat to the abdomen, gentle rectal irrigations of warm saline solution, a liquid diet (or maybe only intravenous fluids for a day or two) and antibiotics. As the attack subsides, a low residue diet is provided first, followed by resumption of a normal diet. Mineral oil, to be taken orally at bedtime, is prescribed. The use of antibiotics is discontinued as soon as possible. When fever and tenderness have subsided, the patient may be allowed out of bed. The tendency is to let the patient up too soon. For aftercare, the same simple suggestions should be followed as for patients having diverticulosis—that is, no cinders in the diet, and mineral oil at night. Many patients, amazingly, do not suffer further acute attacks.

The more unfortunate patient whose attack is complicated by perforation or increasing obstruction must undergo operation at what seems to be the favorable time. If a patient suffers recurring bouts

of infection with periods of disability, operation is advisable. Never hesitate to urge operation if x-ray examination shows evidence that the region involved has short, sharp borders. More often than not the condition is cancer and not diverticulitis in such cases. In general, if operation is advised, the curative procedure is resection of the affected region. Drainage of an abscess or a temporary colostomy without resection of the involved portion may tide the patient over an emergency, but these measures are rarely curative.

The over-all picture of this problem is good⁽⁴⁾. Fully two thirds of the patients with diverticulitis have little or no further trouble. About a fourth will have some trouble but not severe, leaving about 10 per cent who will require surgical measures. This, however, does not apply to patients having diverticulosis. There is no longer the reluctance to advise operation now that we have splendid measures to control infection. While some patients may need a two-stage procedure, many patients can be taken care of with a one-stage procedure, which is indeed a great change from pre-antibiotic days, when a surgical procedure was usually measured in stages over weeks and months and was accompanied by an appreciably high operative mortality rate.

Regional Enteritis and Chronic Ulcerative Colitis

In my discussion of regional enteritis and chronic ulcerative colitis, the word "colitis" is used to mean inflammation of the lining of the colon. It may be due to many different diseases, but unless colitis can be proved by barium enema or sigmoidoscopic examination or both, it is not colitis.

Although much has been written on chronic ulcerative colitis and regional enteritis, we are still awaiting the answers as to why these diseases develop and what causes them. Countless avenues of etiologic ideas have been pursued futilely. Clinically we do not know much about these diseases. Both are related to or increased by emotional stress, intercurrent infection, malnutrition, and food allergy. None of these four factors cause the disease, but they may initiate it or produce relapses. Diarrhea, fever, and abdominal pain are present. In ulcerative colitis there may be only rectal dis-

charges and no real diarrhea, if the process is distal to the rectosigmoidal region.

A curious incidence of perirectal abscess and fistula occurs in 20 per cent of the patients having regional enteritis and in only 6 per cent of those having ulcerative colitis. As the disease progresses, polyps and pseudo-polyps develop in about 19 per cent of the colitis patients; carcinoma will develop in more than 5 per cent. Neither complication develops in patients having enteritis. Stricture of the bowel occurs in 11 per cent of colitis patients, with perforation in 4 per cent; stricture develops in approximately 33 per cent of the enteritis patients, with perforation in 20 per cent. In both groups gross hemorrhage is rare, but may occur in 1 to 2 per cent; bleeding can be profuse, as the patients may pass clots of blood and fill a bedpan with almost pure blood.

Pathologic studies show a curious parallelism. While there are some distinct microscopic differences in the appearance of a specimen from a segment of bowel affected with ileal enteritis as compared with one affected with colitis, yet a part of the colon which is the site of a progressing enteritis is indistinguishable from a part affected with ulcerative colitis.

Medical treatment for regional enteritis is not encouraging. It includes rest in bed, or at least quiet and ease of living, and a high-protein, low-residue diet, always making concessions to any seasonings or beverages or mode of cooking—if the patient will eat! It is more important for the patient to eat than to be concerned over strict observance of a diet sheet. Sedatives, such as small doses of phenobarbital two to four times daily, help the high-strung, anxious patient. Antibiotics and sulfonamide drugs seem valueless or of minimal aid unless there is reason to fear impending or actual perforation. Likewise, hormones (Cortone, Meticorten or corticotropin) are no more than boosters and when so used may be of some temporizing value. They are not curative. Judicious and properly distributed doses of paregoric or codeine are helpful. Fear of addiction is constant, but this has seemed minimal to me over the years. I am more fearful if the patient takes tincture of opium or powdered opium than I am if he takes codeine and paregoric.

The medical management of colitis is essentially the same as for enteritis. Frequently, however, some definite value is derived from the oral use of sulfonamide drugs. I have used them all and have no great favorite. A sulfonamide drug that is not too well absorbed and presumably has its action in the lumen of the bowel, such as salicylazosulfapyridine (Azulfidine), may be best. I am puzzled as to why this drug is beneficial, but certainly many patients are sure that it helps. Cultures of the stool do not show change of the usual flora after administration of Azulfidine, and neither the urine nor blood shows any of the drug in the circulation. I have no explanation.

It should be remembered that blood transfusions are valuable weapons in the improvement of these patients when they are depleted. In fact, some physicians rely chiefly on transfusions, protein diet, and rest. "Peace and protein" is a good slogan for the colitis patient.

Surgical procedures for patients having regional enteritis are a subject of much concern and doubt, and rightly so⁽⁵⁾. In cases in which stricture and obstruction due to a segment of thickened small bowel are the dominant signs, resection does result in cure of a high percentage of patients. When inflammatory features predominate, with fever and diarrhea, and when one or more skip areas are found, either by roentgen studies or surgery, the results are not favorable. The rate of recurrence after resection in cases in which inflammation predominates, or in cases in which the procedure was limited to exclusion only, is at least 40 per cent; if resection is repeated, the rate is 80 per cent or more.

X-ray treatment has been of some help in a small percentage of cases in which there is extensive involvement or if a recurrence follows operation. Probably one patient in five will be benefited by careful periodic administration of x-ray therapy.

Surgical procedures must be done in cases of ulcerative colitis for cancer or possible cancer, obstruction from stricture, extensive perirectal infection, and rectal stricture, or if the colon is a shrunken, narrowed, and utterly destroyed tube. Except for temporizing emergency procedures, the only surgical operation for the colitis patient is

a permanent ileostomy and total colectomy. This is usually done as a one-stage procedure, although in some cases two stages may be necessary. Unfortunately, ileostomy and colectomy are rarely the end of troubles for the colitis patient⁽⁶⁾. Probably a sixth to a fifth of these patients have almost no post-operative or later living problems attributable to their disease, but 80 per cent or more do have obstructions, prolapses, strictures of the stoma, nutritional difficulties, and so forth. When the patient is properly indoctrinated before operation and the surgeon is both lucky and skillful as he fashions the ileal stoma, the ileostomy itself is not too great a hurdle. It is the uncertainty of later complications that makes one reluctant to urge operation until all

conservative measures have been exhausted.

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Recognition of Pulmonary Embolism

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WASHINGTON, D. C.

This paper is concerned with the common type of pulmonary embolism—the kind that results from lodgment of a blood clot in one of the pulmonary arteries. That excludes from consideration such things as air embolism and embolism of amniotic fluid, and some other exotic varieties.

If no other reasons were given for the importance of recognizing pulmonary embolism, the following would suffice. When a patient has had one episode of pulmonary embolism, he is sick, but he is also a candidate for a subsequent episode. And with each succeeding attack the likelihood of a fatal termination increases.

The principal sources of emboli are in the deep veins that drain into the inferior cava. Some 95 per cent have their origin there. A minority originate in other veins or in the heart itself.

Certain cardiac conditions predispose to the development of thrombi within the heart. The main factors are cardiac enlargement and cardiac failure, auricular fibrillation, myocardial infarction and, rarely, bacterial

endocarditis involving the valves of the right side of the heart.

Pulmonary Embolism Resembling Other Conditions

The recognition of pulmonary embolism, when it presents a textbook picture, offers no problem. Too often, however, the picture is smudged, and the symptoms presented resemble other conditions. Arbitrarily, in order to make this presentation easier, I have divided the ways in which pulmonary embolism may mimic other disorders into a number of syndromes.

Unexplained fever

First on the list is unexplained fever. This condition is likely to be encountered especially by the surgeon. Then it is seen usually during the postoperative phase—five days or longer after the operation — when a bounce develops in the patient's temperature chart. Perhaps there are no other symptoms or signs at this phase, and indeed other conditions than pulmonary embolism may provoke this picture. The fact that there is fever, however, should suggest to the attending physician that pulmonary embolism is at least one condition to be considered.

The patient who has unexplained fever as

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a sign of pulmonary embolism is usually sick with some other disorder. So it is that he is a postoperative patient, or he has heart failure. And, looking closely, one finds that along with the fever there are other signs, particularly tachycardia or tachypnea.

Cardiac syndromes

Next are the cardiac syndromes. These are most likely to be encountered in patients who have heart disease to start with.

The major manifestations include an aggravation or persistence of heart failure. The situation is familiar. A patient has been under treatment, and has been responding satisfactorily. Then his heart failure becomes worse. This should always suggest, not that treatment is inadequate, but that some complication may have developed. One such complication is pulmonary embolism. Or the patient's heart failure refuses to respond to usually effective therapy. Such persistence of failure is enough to suggest the possibility of embolism.

In a patient who has coronary artery disease to start with, it is not surprising that pulmonary emboli should provoke coronary pain, due in fact to coronary insufficiency. The lowering of blood pressure that sometimes attends embolism and the blockade of arterial flow in the lungs are enough to create anoxemia, and this in turn provokes the coronary pain. In cardiac patients, the embolism commonly is accompanied by other signs. These include fever, mild icterus, and an increase in the cardiac rate.

I am going to gloss over the problem of cardiac manifestations in a patient who does not have heart disease to start with. The most important, of course, is acute cor pulmonale. I will leave the elucidation of those symptoms for another time and mention one point only: Sometimes the electrocardiogram, taken incidentally because the patient obviously has some kind of cardiac problem, gives the clue to the diagnosis. It shows right axis, a deep S_1 , a prominent Q_3 , and a tendency for the T waves to be abnormal in those precordial leads recorded from the right side of precordium.

Pulmonary syndromes

It is easy to understand why a patient with pulmonary embolism that progresses to infarction should have symptoms of pleurisy. The anatomic structure of the embolus

brings it to the pleural surface, where irritation produces a pleural-type pain.

Sometimes this pleurisy is overlaid with an effusion, so that the infarct itself may appear indistinct in a chest film or other methods of examination. Such an effusion, if tapped, may give an important clue to the diagnosis, since commonly it contains red blood cells.

Pulmonary consolidation is manifested in a variety of ways. For example, it is easy to recall the kind of chest film which the roentgenologist interprets as indicating unilateral or even bilateral pneumonitis. That diagnosis may be quite compatible with the clinical symptoms and signs. One fact may stand out in such a film—cardiomegaly. When a cardiac patient shows evidence of pulmonary consolidation, suggestive perhaps of bronchopneumonia or even lobar pneumonia, some thought should be given to the possibility that it is not pneumonitis but pulmonary infarction after all.

We are confused sometimes by the shape of an infarct. Anatomically, an infarct has a conical shape, and if it is situated properly with respect to the passage of the x-rays before they reach the film, it will look like a triangle in the chest film. Sometimes, however, in the two-dimensional chest film, it appears oval or round.

Occasionally, very early in the course of pulmonary embolism, abnormal radiolucency can be detected. It is apparent that when a pulmonary artery is obstructed, blood will no longer be delivered to the segment of lung corresponding to the obstructed artery. Close examination of a chest film may reveal that vascular markings have disappeared from that area.

Commonly, the infarct is at the costophrenic angle. Here, since it involves several pleural surfaces, it has a triangular shape just opposite to the one usually expected. The apex of the triangle at the costophrenic angle points away from the hilum, and the base of the triangle is directed toward the hilum.

When infarcts group together, the conglomeration is likely to assume a bizarre shape.

Occasionally, it becomes apparent that a pulmonary lesion was indeed an infarct by the manner in which it heals. Three-di-

mensionally, an infarct heals the way an umbrella closes. Since a chest film is two-dimensional, the infarct appears to heal the way a lady's fan closes.

Confusion of infarction with lung tumor can be exemplified by a brief case story. The patient was an elderly man who had had a cough for a long time. He was a heavy smoker, and one day, without any other special aggravation of his cough, he spat some blood. A chest film disclosed a density of the left hilum toward the base. The physician who saw him thought that this might be bronchogenic carcinoma. The patient was promptly referred to a thoracic surgeon. A few days elapsed before any special studies could be done. Then, fortunately, the surgeon elicited the story that after a long automobile ride the patient had noticed a little aching in one leg—the kind anybody expects after a long drive. In addition, there had also been a little swelling, such as might be expected. A subsequent chest film, along with that story, however, was enough to establish that the lesion was after all a pulmonary infarct and not a lung tumor.

Most pulmonary infarcts do not become infected, and rarely do they undergo necrosis. Once in a while, however, one does become secondarily infected or, because with bronchial obstruction an element of infection will be introduced, lung abscess results. Because such abscesses are close to the pleural surface, empyema is a common complication. The routine use of antibiotics in the management of uninfected pulmonary infarcts will not prevent these complications, which usually appear late in the course of the disease.

Shock syndromes

The shock syndromes of pulmonary embolism include (1) syncopal attacks, (2) shock, and (3) cerebral effects. Let us pass over the first two and discuss briefly the third. Syncope is the kind of trouble that is likely to be encountered in the elderly patient who has some cerebral arteriosclerosis to start with, and in whom anything that unfavorably tips the blood flow to the brain may produce cerebral symptoms. Pulmonary embolism is one of the conditions that has this effect. So it is that a pulmonary embolus in the elderly patient may cause some lowering of blood pressure that goes undetected at the time. As a consequence of

the cerebral anoxemia, in addition to the diminished blood flow to the brain (both anatomic and functional), he presents the signs of a stroke. At this stage the signs of stroke predominate in the physician's eyes, and he may overlook the underlying cause. It need not be pulmonary embolism. It could equally be myocardial infarction, bleeding into the gastrointestinal tract from a peptic ulcer, or some other condition. I plead with you to consider the possibility that some complication may occasionally be the cause of an old person's stroke. It need not be due entirely to intrinsic vascular disease of the brain.

Syncope

Syncope as evidence of pulmonary embolism usually appears in a patient who is already sick. Perhaps he is a man who is convalescing from myocardial infarction. When he faints on first getting out of bed or on straining a little to move his bowels, the thought arises, "Well, this is to be expected; it is a part of convalescence." It may be, but it may also be an announcement of pulmonary embolism.

Syncope in a patient who seems to have been previously well is not uncommon, but I will relate a story concerning my own errors. A young woman thought to be two months' pregnant was admitted to the hospital because of three episodes of fainting during the preceding 10 days. The last one had persisted some 15 minutes and had alarmed her family a good deal. On admission a physical examination revealed nothing remarkable except the indication of a few months' pregnancy. She was sent to the x-ray department for a chest film as a part of her routine workup. While there she had another episode of syncope. There was an opportunity then to measure her blood pressure, which was not recordable. She recovered from that episode within a few minutes.

Staff members who were present at the moment noticed that she had been breathing rapidly just before the syncope began. The next day she was presented at so-called "grand rounds" for consideration by all the staff. In masterful style, I elicited a story that seemed to make it quite evident that this young woman was suffering from considerable nervous strain and had been afflicted with the hyperventilation syndrome. In other words, she would get nervous and

breathe fast; this would cause changes in the electrolytes, and she would become unconscious. I made this story so plausible that I was as shocked as anyone else the next day when she became unconscious again and failed to recover. About 12 hours later she died, not having come out of shock. It was not until the final stage of illness that anyone got around to measuring her lower extremities. There was no obvious edema, but it was apparent that one leg was larger than the other. A chest film obtained two days before death, after several episodes of embolism, was entirely normal except for some prominence of the pulmonary conus area, perhaps indicative of pulmonary hypertension. At autopsy, multiple pulmonary emboli without infarction were found, and one massive embolus that must have been the last was occluding the bifurcation of the pulmonary artery.

Conclusion

The recognition of pulmonary embolism has more than academic interest. It is of real, practical significance, because there is every reason to try to prevent the next episode. Often, because of the close association

of this condition with venous thrombosis, the reinforcement of a diagnosis of pulmonary embolism comes by examining the lower extremities closely for evidence of venous thrombosis. Those evidences may not be prominent. They may require an examination that is indeed close.

The influence of pulmonary embolism on prognosis is bad in a general sense, but in another it may imply a good outlook. Consider the man whose heart failure is going badly. Two possibilities come to mind: (1) his heart disease is so bad that he won't recover; (2) he has a complication, and if the complication subsides, he may be better. When the complication is pulmonary embolism and when subsequent episodes of embolism can be prevented, the prognosis, in a sense, is better than it might be otherwise.

Finally, the recognition of pulmonary embolism is a clear directive to the physician to begin doing something to prevent the next episode. What he does depends to some extent upon his inclination and previous training; but, by and large, anticoagulant therapy seems the most effective answer.

Mental Health Needs and Resources in North Carolina

Preliminary Report to the North Carolina Academy of Preventive Medicine of Committee Number One for the Study of Mental Health

FRED G. PEGG, M.D.*

WINSTON-SALEM, N. C.

At a meeting of the Academy of Preventive Medicine at Chapel Hill, January 17, 1955, certain projects that might enhance the prestige of the Academy and serve to advance public health were considered. Among them was the study of mental health, and two committees were appointed to carry out this study. The consensus of the Academy was that all phases of mental health should be considered; that the study

should be continuous; and that long range objectives should be set up, with suggestions as to how to attain them.

Our committee was assigned "To consider methods useful in determining the needs of the community in reference to services for the prevention or alleviation of mental diseases, including techniques and indices which might be useful." It soon became apparent that it would be difficult to limit our studies to the area specifically assigned. This matter was discussed with the chairman of the other committee, which had been assigned to consider a mental health

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program for a community which did not necessarily require a preliminary survey—for example, what clinics might be established, what education might be used, what services might be rendered, and how mental hygiene can be incorporated into public health services. It was decided to include other phases of mental health in our survey, and, in order to prevent duplication, to combine the reports prior to final presentation to the Academy.

General Survey of Mental Health Problems

The first step in this study was to make a general survey of the mental health problems and needs of the community. It was intended to get as much factual information as possible and, at the same time, to determine the thinking and reaction of the public to mental health generally. For example, what community mental health problems are considered most important, how can these problems best be met, what additional facilities are needed, and so forth. We discussed mental health with members of the medical profession, welfare departments, schools, juvenile courts, ministers, personnel directors of industries, social workers, psychiatrists, and others. All persons interviewed expressed great interest and seemed anxious to cooperate; however, the majority saw the problem from a limited point of view rather than as an over-all need. This attitude was to be expected, since each person was interested primarily in mental health as it affected his work. General information and attitudes in the survey were easy to obtain. On the other hand, specific and detailed data were, in most cases, nonexistent.

When we began to compile the results of our studies, we were struck by the fact that many different people and groups were dealing with different phases of the problem. Since we were trying to conduct our study from the community point of view, we decided that it would be worth while to classify mental health problems as nearly as possible as they were seen by the people of the community who deal with them from day to day.

Mental Health Problems as Seen by the Community

The psychotic group

The group in which the community seem-

ed to be most interested was the *psychotic*, which includes those individuals who have been treated and returned to the community, those under treatment, and those who are psychotic but who have not been diagnosed.

It is not too difficult to determine the approximate number of psychotic patients in a community. Records of those committed to mental institutions are available in the office of the clerk of the court. Certain cases being treated in private institutions are not recorded, but this number is relatively small. The number of new patients who require admission to a hospital each year is approximately 75 per 100,000 population. Most of these require treatment for a year or more, some for much longer, and many for life. Thus the care of the psychotic patient becomes tremendously important. No other single medical problem is of such concern to the community. While the incidence of tuberculosis is close to that of psychosis, the shorter hospital stay and the higher recovery rate of tuberculous patients make this disease second in importance.

Let us look for a moment at the problem the psychotic creates in the community. Considerable stigma is attached to mental disease, and people are still reluctant to acknowledge that a member of their family is insane. They tend to delay treatment until it becomes absolutely necessary, and even then try to keep it as secret as possible.

Furthermore, the average individual is poorly informed as to the early symptoms of insanity. Yet the patient rarely has any insight into his condition and must depend on his relatives and friends to make or suspect the diagnosis and get him under treatment. Consequently, the diagnosis is frequently delayed until the disease has advanced beyond the early stages and the patient has become unmanageable. Only then does the family reluctantly accept his condition and recognize their need of advice. Usually they consult the family doctor, who all too often is not able to give much help. The average physician is not well acquainted with the various types of mental illness and has little interest in such patients. As a rule general hospitals will not accept psychotic patients for treatment, and it is often difficult to make a proper diagnosis in

the home. As a result, many patients have to be confined in local jails, which, of course, lack adequate diagnostic and treatment facilities. Treatment is thus further delayed and the chances of arresting or curing the disease are greatly diminished.

Not only is diagnosis delayed, but often facilities in state hospitals are not readily available, and it is necessary to keep the patient confined in jail for a period of several days or even weeks. This situation usually serves to aggravate his mental disorder.

Most psychotic patients are treated in our state psychiatric institutions, and a good percentage are eventually returned to the community from which they came. Unfortunately, little or no follow-up facilities exist. Almost no social work is done, and the patient returns to the same home and community problems that helped to bring about his break-down in the first place. Frequently the family has not been told how to help him re-adjust to home and community life, and there are few clinics where he can continue to receive psychiatric help and guidance. For this reason, a relatively large number of patients suffer unnecessary relapses and have to be re-admitted to the hospital.

Emotionally disturbed children

Community interest was most high in regard to children with emotional or personality disturbances so severe as to interfere seriously with their adjustment to school and family life.

Unfortunately, it is almost impossible to evaluate this problem statistically. It is certainly widespread. One pediatrician, on being asked what percentage of his practice consisted of emotional problems, replied that at one time or another every child needs guidance or help with this type of problem; however, only about 5 per cent of his patients came to his office primarily because of emotional disturbance.

In a typical community the juvenile court handled 550 cases per 100,000 population; however, in only 135 cases was the child involved considered to be definitely delinquent. Despite the interest of parents, schools, child guidance clinics, and so forth, exact figures are not available. We were interested in finding out what the community considered were the causes of delinquency and emotional problems in child-

ren. The majority seemed to blame the failure of the family and the community toward the child. It was frequently pointed out that physical and mental handicaps were also a big factor. Most communities appear to be much better able to handle the problem child than they are the psychotic patient.

An unfortunate misconception in regard to child guidance clinics seems to exist in many communities. Unintentionally, the public has been led to expect more from such clinics than they can possibly offer. In fact, many people seem to think that the establishment of a clinic will solve all their mental health problems. They have worked to establish clinics with this idea in mind, only to find that the clinics were unable to care for anything like the number of children needing help. This, of course, is no fault of the clinic; but the public should be informed as to what a given clinic can do, and should not be led to expect miracles.

In setting up a child guidance clinic in an area, it would appear wise to let the public know beforehand that a clinic designed to meet the needs of 50,000 or 75,000 people cannot be expected to serve a quarter of a million population. This is what has happened in several areas in North Carolina.

Psychoneurotic adults

Adults with psychosomatic and psychoneurotic symptoms severe enough to incapacitate them partially or completely were of little interest to the community generally; however, these persons were of considerable concern to their families and to physicians. Such illnesses should probably be regarded as having both physical and emotional aspects. It is impossible to determine the number of individuals who fall into this classification. Many general practitioners say that from 30 to 50 per cent of their patients have illnesses of this type. Some clinics report that from 60 to 70 per cent of their patients come primarily because of psychosomatic symptoms. Actually the figure is probably much lower than indicated because patients of this type tend to drift from one doctor to another and remain almost constantly under medical care. Most doctors easily recognize these patients, but few are inclined to give the necessary time for handling such cases properly. The number referred to psychiatrists is relatively

low because of the scarcity of psychiatric help and the high cost of treatment.

Mentally retarded children

The number of mentally deficient, or retarded, children depends entirely on the method of the classification used, and may vary from 2 or 3 per cent to 10 per cent of the total child population. The number of severely retarded children is relatively low, and the diagnosis is easily made. At present little can be done for these children, and they become candidates for institutional care.

The larger group of less retarded children, probably approaching 8 to 10 per cent of the population, presents a greater problem. They are unable to do normal school work or enter any of the skilled trades or professions, and are therefore more likely to become delinquent or emotionally disturbed. Medical treatment up to now has little to offer; however, if mental retardation could be recognized early and special educational and vocational provision made, the community's problem would be considerably lessened and many potential delinquents and petty criminals might be made into useful citizens. Early recognition and the provision of special therapeutic and educational facilities seem to offer the only answer at present.

Most communities seem to understand the problem of mental retardation and are trying to do something about it. However, the high cost and lack of trained personnel in our school system make progress slow.

Special problems

Psychopathic and constitutionally inadequate personalities, chronic alcoholics, mentally deficient adults, and deteriorated cases create widespread and distressing social problems. The drunkards, the ne'er-do-wells, the petty criminals are encountered in every community. They clog the courts and swell the relief rolls of the welfare departments. They are everybody's concern, but the public attitude is still largely one of contempt and hopelessness.

In recent years Alcoholics Anonymous has done some excellent work in rehabilitating the chronic alcoholic. Clinics are now being started in some areas to which alcoholic individuals can come for medical, psychiatric, and social service. The results have

been promising, and the public attitude toward the alcoholic is changing.

The psychopathic, mentally retarded, deteriorated cases are less hopeful. Psychiatric, psychological, and social studies of these individuals, with records available to courts, welfare, and social service, would be of help. Mental and vocational evaluation could then be made and possibly some type of supervision devised to keep many of them at work and out of mischief. Supervised workshops where they could be kept indefinitely might be set up. No one seems to have a ready or easy answer.

Resources and Needs

The second part of our survey was aimed at determining the resources and needs for a community mental health program. Since these vary considerably, it was obvious that no one community could be used as a basis for a study of this type.

When this study was completed, we realized that our findings were quite similar to those obtained by the Department of Mental Hygiene of New York State and published in 1954. We are therefore quoting extensively from the New York report, "New Program for Community Mental Health Services," noting where our findings vary. We believe that the similarities between the two studies indicate that mental health programs and problems throughout the country are very much alike.

... Nowhere in the State (New York) were there adequate services at the community level ...

Services were unevenly distributed throughout the State. Except for a few localities, mental hygiene clinics were the only mental health service and the range was from one team for 30,000 people to one team for 353,000. [Corresponding figures in North Carolina range from 400,000 to 700,000.]

At the local level, there exists no single governmental agency charged with responsibility for community mental health. Significant parts of a total mental health program are provided in many communities by education authorities, by welfare officials, by public health departments and by courts, but nowhere is there a central planning body for mental health services. The result is overlapping, duplication, and gaps in service, and overextension of their programs by some agencies.

Fragmentation of services at the local level was aided by the fact that financial support, although limited, was available from a number of state departments and agencies ...

The mental hygiene clinic is the community service which is in greatest demand at the present time. This is a relatively high per capita cost service requiring psychiatrists, psychologists, and psychiatric social workers as the nucleus for the clinic team. This high cost coupled with the shortage of trained personnel makes it necessary to plan services for fairly large population groups.

In 1948, the former Federal Security Agency recommended a ratio of one psychiatric clinic per 100,000 population. However, recent experience in the operation of community mental health clinics indicates that a more realistic estimate of need may be one full-time clinic for each 50,000 people . . .

Any permanent program must take into account the fact that, up to the present, mental health services have been developed by a variety of public agencies and by a large number of voluntary organizations. The present inadequate level should not be worsened by setting up a system which would compel the giving up of any existing qualified service. Moreover, comprehensive programming for community mental health requires the combined efforts of health, education, welfare, judicial, and correctional agencies, both public and private. It is equally true, however, that there is an urgent need for coordination and integration by a single, responsible agency of local government . . .

There are five categories of community health services.

The first category is the one which includes the greatest volume of services outside the hospital. These are involved with the process of making an early diagnosis and providing early treatment for individual cases of mental disorder. In this category may be included all of the mental hygiene and child guidance clinics, in-patient psychiatric services in general hospitals, and the case finding efforts of school systems, welfare agencies and public health departments.

The second category of service in the community is that of rehabilitating the discharged or convalescent patient from the mental hospital. The after care clinic system has grown up to a remarkable extent and covers most of the communities of the state. Although there are weaknesses in the present intensity of rehabilitative services to convalescent and discharged patients, nevertheless an enormous number of people are seen every year in the after care clinics of the state hospitals. In some communities there are the beginnings of locally operated programs for rehabilitation, particularly for discharged patients. [Our rehabilitative and follow-up services on both the local and state level seem to be inferior to those of New York State.]

A third category of community mental health services may be labeled consultative. These are services rendered by trained mental health personnel to professional staffs of other agencies such as welfare departments, schools, courts, public health departments and so on. They deal with questions regarding the mental status and the probable abilities of an individual to fit into the usual practices of the agencies seeking the consultation.

A fourth category may be called educational. Under this heading may be included all those activities carried out by mental health personnel to communicate to other professionals and to the general public what has been learned from the clinical relationships of mental health personnel regarding the problems of human personality. These activities are directed toward teachers, physicians, ministers, parents, policemen, and all other individuals who have, because of their occupational or other relationships, special responsibilities for the welfare and the mental health of other persons. This field of mental health education has only begun to develop. There are many untapped areas of work, areas where almost nothing has been done systematically up to the present time to improve the understanding of occupations which have a crucial relationship to the thinking and feeling of people about personality.

The fifth and last category of community mental health services may be called prevention. At the present time, it is the least voluminous of all of the mental health activities, although it is probably the most important. It is true that all of the four categories previously mentioned have been considered to be preventive or prophylactic. This fifth category, however, refers to specific efforts so to deal with facts of community life as to reduce the frequency with which personality disorders occur. Two general divisions of this category may be described—those where the disease has an organic cause which is preventable; and those where we believe the disease has a psychological cause. With respect to the first division, preventable causes can be grouped into trauma, infection, malnutrition and poisoning. Examples are venereal disease control programs, the problem of rubella during early stages of pregnancy, the adequacy of nutrition during pregnancy, the problem of minimizing complications of brain injury, and the treatment of the infections of childhood like measles so as to avoid encephalitic complications. In the matter of psychological causation, there is need, for example, to be concerned with the maintenance of the primary relationship a young child has during the first years of life. Prevention here encompasses the implications of maternal separation, of adoption and child placement prac-

tices, and of visiting regulations on the pediatric wards of general hospitals.

No community can say that it has a complete community mental health program if it does not take into consideration all five of these activities and if there is not one agency and a group of people professionally preoccupied with the problem of seeing to it that all five of these categories of services are provided to the people of the community to the extent now possible.

To these needs we have added a sixth category which could be labeled statistical data. Such data are needed for several reasons. It is necessary if the community is to understand and appreciate its immediate problems in mental health, as well as in setting up a well planned program. It is also necessary for establishing base lines for comparison with future statistical data to determine trends in mental health problems. In no area in the local community did we find a serious attempt to compile statistical data on mental health, even though in some instances such information and records could be rather easily obtained. For example, the clerk of court's office has records of admissions to our state institutions for the treatment of insanity. The welfare department has records of juvenile delinquency, admissions to correctional institutions, feeble-mindedness, and so forth. It would appear that the compilation of such data is essential to the development of a good community mental health program.

How Well Are our Present Needs Being Met?

In an effort to answer this question, two simple studies were made. The records of admissions to our state hospitals for the past year were surveyed to find out whether or not the patients had been seen by psychiatrists and if they had received proper diagnosis and treatment prior to commitment. It was found that 6 per cent had been seen by psychiatrists and could be classified as having had adequate study and treatment. Nineteen per cent had been seen by a psychiatrist in consultation only, and apparently to confirm the diagnosis and sign commitment papers. Seventy-four per cent had not been examined by a psychiatrist at all, and apparently few, if any, of these had received adequate study or treatment.

The second study was carried out by sending a questionnaire to a small group of phy-

sicians. Although the group was small, it was designed to represent a cross-section of the medical profession. The questions asked were: (1) "What percentage of the patients you see in your office do you feel could be materially benefited by psychiatric treatment?"; and (2) "What percentage of the patients you feel would benefit by psychiatric treatment are actually referred to psychiatrists?" As was to be expected, the number of patients classified as needing psychiatric treatment varied considerably, depending on the type of the physician's practice. Thus, the general surgeon said approximately 10 per cent, while the replies of the internists and general practitioners ranged from 30 to 40 per cent. The over-all average was about 25 per cent. The percentage of patients actually referred to psychiatrists did not vary so widely. Among white physicians the proportion ranged from 1 to 2 per cent; among Negro physicians, 0.1 to 0.5 per cent.

As a third measurement, we decided to consider the proposed mental health clinic set-up in North Carolina on the basis of population the clinics *will have to serve*, and the estimated number that such clinics *can serve adequately*. Eight clinics must serve the entire population of the state—approximately 4,500,000. This would mean that each clinic must serve about 550,000 persons, or from five to ten times the number it could be expected to serve adequately. It seemed safe to conclude from evidence of this type that mental health services are inadequate, and even though the number of psychiatrists and other workers may increase considerably over a period of years, at no time in the foreseeable future will personnel be commensurate with the needs.

Summary and Conclusions

In this survey we have tried to approach mental health from the standpoint of the local community and have considered three different aspects of the problem. What are the problems of mental health as the community sees them? What are the mental health needs of the local community? How well are these needs being met?

We realize how inadequate this survey has been. We realize that it has not been conducted in an accepted scientific manner and that it has not really revealed anything that we did not know before. We believe,

however, that it has some value and that from it can be drawn certain conclusions which may help to clarify our thinking and planning in mental health.

1. *Education* is one of the primary needs in mental health.

a. Although the psychoses constitute one of the most common serious diseases, the public is poorly informed about the early signs and symptoms and how to obtain early diagnosis and treatment. This situation is made worse because most mentally ill patients are taken away from the local community and treated in state institutions. For this reason, the public does not appreciate the extent and seriousness of mental disease. The average hospital does not provide diagnostic and treatment facilities. As a result, general practitioners have little interest in the handling of mentally ill patients. These factors have caused mentally ill patients to receive late and inadequate treatment and care.

b. Greater stigma is attached to mental illness than to any other disease, with the possible exception of syphilis. Why? There are several partial answers. The public has been led to believe that mental illness is something mysterious for which there is no explanation. People associate it with some hidden heredity taint, some confused Freudian concept or sex obsession, which really means nothing to them but which serves to attach a high degree of stigma to the condition. Would it not be much simpler and wiser to admit that we do not know the cause or causes of mental illness any more than we fully understand the causes of rheumatoid arthritis or atherosclerosis, but that pathologic and physiologic causes exist just as in other diseases? It has not been long since the causes of rickets, diabetes, and paresis were unknown.

2. Our present approach to mental health problems is unrealistic. The statement, "too

little too late," could be applied to our thinking and planning. We cannot hope to have, in a reasonable time, enough trained personnel or funds to do the job with our present plan of attack. Obviously, we must explore ways and means of achieving a mass approach. We should seek advice and help of other groups particularly general practitioners, welfare departments, and schools.

3. Each local community should invest some responsible group or board with the authority to plan and carry out a mental health program. Up to now, various agencies and various groups have attempted, in a limited way, to deal with the problem. Results have not been good and unless the responsibility is assigned to one group, future planning and coordination will be inadequate.

4. At present relatively little attention is paid to the psychotic patient in the local community. Such patients are often confined in jail, where diagnostic and treatment facilities are lacking and where the environment tends to aggravate the patient's condition. General hospitals should provide diagnostic and treatment facilities for mental patients.

5. Local communities have made relatively little effort to gather or analyze statistical data on mental health problems. It would not be difficult for local health departments or other agencies to compile statistics regarding mental illness and other phases of mental health. Such an effort would serve to focus community interest on the importance of these problems and would be of considerable help in evaluating trends in mental disease in the future.

6. Finally, we feel that we know only a few of the answers to the problem of mental health and would suggest that the Academy of Preventive Medicine continue its study.

Generally speaking, if a person comprehends a problem, he can solve it.
This is true of problems of personality as it is of problems of mathematics.

—Thomas D. Cutsforth in "The Blind in School and Society."

Practical Aspects of Psychiatry

RICHARD C. PROCTER, M.D.

WINSTON-SALEM

Too long has psychiatry been veiled in mystery, hiding its ignorance behind words whose meanings vary from one person to another. The recent popular acceptance of psychiatry as a branch of medicine is a goal many have long desired. One factor which has helped bring this state of affairs about is the recognition by medicine in general of the effect of the emotions on bodily functions.

Primarily a patient comes to a physician because he is in pain—either physical or emotional — or because he is afraid. He comes for relief, and his pain and fear may be just what will interfere with his recovery. This is because he cannot differentiate between “symptoms” and “illness”—a fact which is particularly true where psychiatry is concerned. A man can understand, perhaps, that his fever, chest pain, cough, and malaise are coming from pneumonia and that treatment must be directed toward the disease. It is more difficult for him to understand that his abdominal pain does not come from an ulcer, but stems from fear of his boss.

There is no magic key to understanding an individual's emotions. The ego, super-ego, id, Oedipus complex, the unconscious, and so on are all important to the analyst in his area, but for the great majority of psychosomatic ills such alarming words are unnecessary and may be confusing, particularly to the internist. One hears a great deal these days about the old-fashioned family doctor and his relationship to his patients. He was able to handle many of their emotional illnesses because he took time to listen; for if there *is* a key to this matter, it is the ability to listen intelligently and uncritically. Many physicians are afraid to handle emotional problems because they believe discussion of pertinent material will embarrass the patient. But usually it is the physician who is

embarrassed, and this attitude in turn is reflected in the patient.

The Development of Personality

Some general matters should be considered at this point. Too often the diagnosis of emotional disorder is made by exclusion, which in itself presents the possibility of mistake. Why this has been true for psychiatry and not for other branches of medicine I am unable to comprehend.

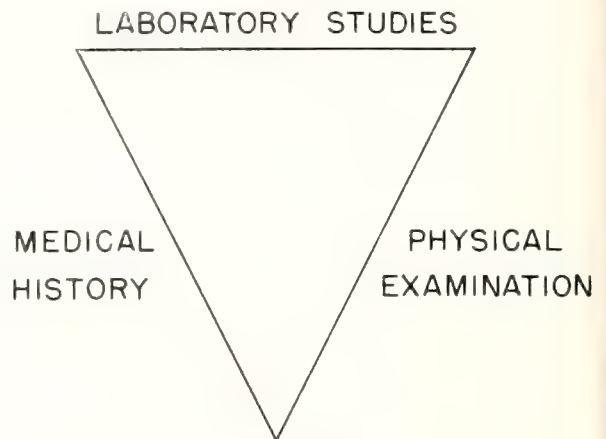


Figure 1

A diagnosis is usually made by a sensible coordination of the medical history, the physical examination, and the indicated laboratory studies. The correct diagnosis in any illness can be reached only by including a study of the personality of the individual patient involved.

The factors involved in a personality study and history are not as complicated as might

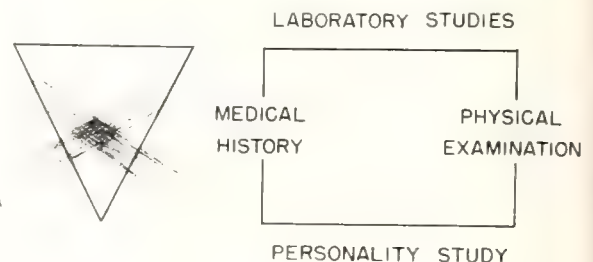


Figure 2

Read before the Section on Practice of Medicine, Medical Society of the State of North Carolina, Pinehurst, May 4, 1955.

From the Department of Neurology and Psychiatry, the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

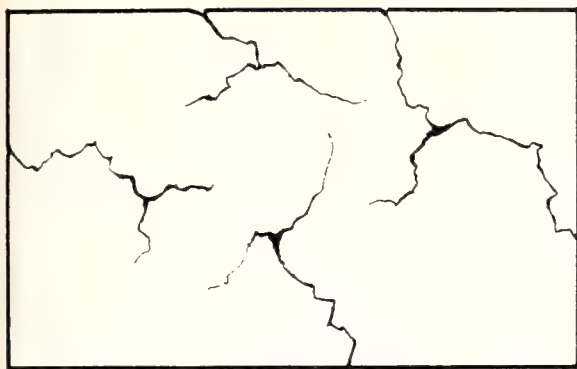


Fig. 3. The basic constitution.

be imagined. Of major importance are the vocational background, the religious training and beliefs, the marital adjustments, and the parent-child relationship of the patient.

The constitution

Probably the easiest way to understand how an individual's personality develops is to think of a series of blocks. The first block illustrates the constitutional portion of an individual's personality. I do not intend to get into any discussion of heredity or genetics, but certain aspects of heredity are important. One is born with certain intelligence, and intellectual potential is significant from a psychiatric standpoint. The few physical disorders which are definitely known to be inherited may also influence one's emotional development. We always include under constitution the intrauterine period and whatever developmental anomalies may take place during this period.

The environmental past

After birth certain modifications begin to take place in this basic structure. These can be represented by another square called the "environmental past."

This experience modifies our existence physically and psychologically. It modifies it physically if we suffer an illness which leaves us crippled, if we suffer injury, or if our basic constitution is weakened by inadequate nutrition. On the other hand, faulty education, false beliefs, misinformation, lack of training, and misdirected thinking all may modify our basic constitution from a psychologic standpoint. If, however, the paths taken in our psychologic growth are

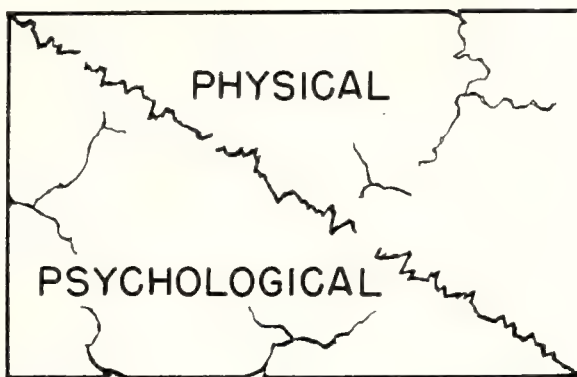


Fig. 4. The environmental past.

good and we are well trained, we develop into integrated adults. Thus we have two blocks modifying each other—the physical and psychologic past, interacting with the basic constitution.

The present

Everyone has some constitutional weaknesses, which we can represent by little cracks in the block. Everyone has physical defects, which we can represent by other cracks. And everyone has environmental-psychologic failure of development, which we represent by more cracks. This structure represents any individual modified by his past experiences, physical and psychologic. The last block represents the present with all its pressures—physical and psychologic—bearing down upon the basic structure.

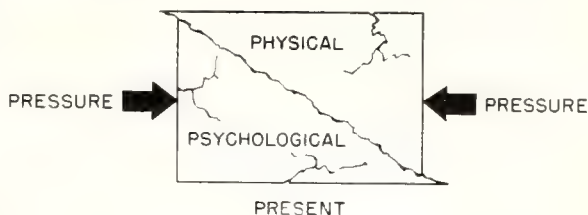


Fig. 5. The pressures of the present.

The structure of the normal individual is sufficient to carry the average physical and psychologic load. The pressures are self-evident — taxes, support of family, business worries, health, and so forth. We have to live within certain social restrictions. We have various hates, angers, and fears which exert psychologic pressures. If an individual's basic constitution is too weak or if his physical or psychologic environment has been too difficult—if the block is filled with

cracks—he will break apart under the present pressure. These illustrations indicate the importance of securing information concerning an individual's past.

The Physician's Attitude

Probably the most important single factor I can present is the attitude of the physician. If he is not sympathetic and understanding when the patient begins to describe his feelings and symptoms, the conversation will soon lag. On the other hand, the more skillfully the physician can switch the conversation from symptoms to personal affairs, the sooner will he come into possession of the real problem disturbing the patient. This process is time-consuming, because direct questions will frighten the patient.

To tell a patient, after a physical examination, that he is imagining his symptoms or that they are "in his head" is to insult his intelligence and probably spoil all chances of helping him solve his problems. He needs some logical explanation that will give him confidence in the therapist and in himself. I have found that a simple diagram illustrating the phenomenon of stress is very helpful in relieving many of the patient's symptoms; for this reason I have a blackboard in my office. My explanation is often based on such a diagram as is shown in figure 6.

One can explain the "fight-flight" mech-

anism to the patient, briefly, as follows*:

"Mr. Jones, you have many symptoms which have been bothering you for some time. Thorough physical laboratory examinations have failed to uncover any evidence of organic disease in your particular case. On the other hand, some things we have talked about indicate to me that much of your trouble is coming from nervous tension. I don't mean to suggest that your symptoms are imaginary or that they are not actually occurring; but I do mean that a lot of the feelings that are concerning you are coming from your emotions and the things you worry about.

"Mr. Jones, probably the simplest example that medicine knows of the effect of emotions on the body is concerned with the phenomenon of blushing. As you know, when you blush your face becomes red and flushed. People blush because they are embarrassed, and embarrassment is an emotion. Consequently blushing is an example of how your feelings, or your emotions, can affect your body.

"Now, as you can see from this little diagram which I have drawn, the sensation of fear we call a stimulus. When fear is recognized in the brain, certain changes begin to take place in the body in an effort to prepare us physically to react to the fear. This is called a "fight or flight" mechanism. Our bodies are constructed in such a way that when we are faced with fear, certain changes take place to get our bodies ready to protect us from the fear. In the first place, a chemical is thrown out from the adrenal glands which is known as adrenalin. In addition, other glands of the body increase their output. You begin to breathe very rapidly and shallowly in the upper part of your chest, and this causes a washing away of carbon dioxide. You know that it is dangerous to get too much carbon dioxide in your blood stream. On the other hand, if you wash out too much carbon dioxide and get too much oxygen in your blood stream, this also will cause certain symptoms.

"For example, your heart begins to beat rapidly. Sometimes the beat feels heavier—like a pounding in your chest. Then your stomach action is stopped completely. There is a small muscle at the end of the stomach known as the pylorus. When this muscle squeezes down in a sort of cramp, the stomach juices will not flow and no digestion will take place. This will cause sharp pains or aching sensations in the pit of your stomach. You may also develop a desire to urinate or relieve your bowels. All these changes are secondary to the clinical changes I have mentioned. If you continue to over-breathe, you may develop cramps in the large muscles of your body—a chronic tension of these muscles causing headaches, backaches, or leg aches. If it continues, you become chronically fatigued or tired out and

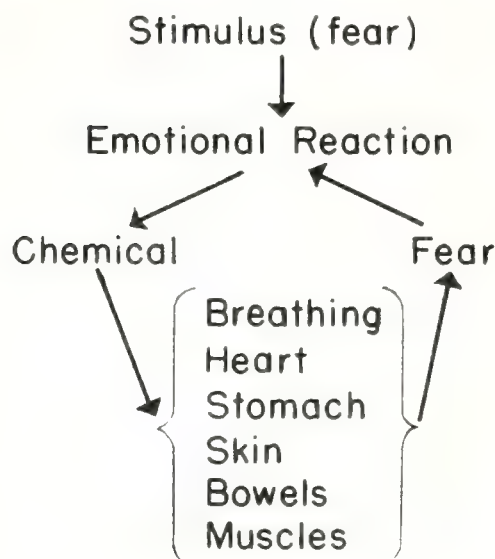


Figure 6

*The underlying principles of this explanation were taken from a monograph, "The Use of General Semantics and Korzybskian Principles as an Extensional Method of Group Psychology," by D. M. Kelly, M.D., mimeographed by the Institute of General Semantics, Lakeville, Connecticut.

experience loss of appetite, insomnia, difficulty in concentrating, and so forth. These we call symptoms.

"Now this reaction is perfectly normal in every individual up to a certain point. However, in your particular case, Mr. Jones, when you have noticed a number of the symptoms I have mentioned, you have become frightened. You have become afraid that you have heart trouble, stomach trouble, or a disk in your back. This has led to a secondary fear, and the more afraid you have become, the more your symptoms have progressed, until a cycle has been established. I think it is important for you to understand this so that you will not develop a secondary fear of your symptoms, but will realize that a certain percentage of them are normal—particularly in the situation in which you find yourself now."*

The majority of patients can understand this type of explanation, and it is a great relief to know that their symptoms are not grossly abnormal and that they are not "cracking up."

Lastly, the language of organs is important in dealing with emotional illnesses. The symptoms about which a patient complains will tell a lot about the underlying patho-

logy. For example, dysphagia or globus may indicate something in the patient's life that he can't swallow. Nausea may indicate something that he can't stomach. The feeling of apprehension in his chest may indicate that he had a load on his mind; anorexia, that he is starved emotionally; fatigue, that an emotional conflict is "sapping" his energy.

Conclusion

Again let me stress the importance of the attitude of the doctor — the importance of listening in an uncritical and sympathetic manner—in dealing with patients who have the so-called "psychosomatic illnesses." In the last several months progress has been made in the chemotherapy of the milder psychiatric disorders. Certain of these preparations may well prove valuable to the internist as well as to the psychiatrist, but it should be understood that all of them must be used in conjunction with interview therapy, as aids in helping the patient gain insight into his basic difficulties rather than as curative measures within themselves.

Psychologic Factors in Gynecologic Surgery

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Physicians have long recognized the difficulties of diagnosis and treatment inherent in the physical symptoms of psychoneurotic patients. These symptoms may at times resemble those indicating surgery. This fact, together with the tenacity with which the neurotic person clings to his symptoms and desires surgery, may lead to operation. Several studies have pointed out the high incidence of surgical procedures in psychoneurotic women, without answering the equally important question of cause and effect. That is, did the surgery result in neurosis, or did the neurosis result in the surgery.

*From the Department of Psychiatry, Duke University, Durham.

Read before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 4, 1955.

During the years 1934-1950, at least 11 separate investigations⁽¹⁾ high-lighted the problem of neurosis and surgery. Lack of time prevents detailed discussion of these studies. Most of them indicate that more than *twice* as many major surgical procedures, and more than *twice* as many major gynecologic procedures are done in neurotic patients than in controls. In addition, these studies indicate that the average number of operations *per patient* is about 2 in the neurotic group and only about 1.1 in control groups. In one study^(1d), a group of patients with classic hysteria had averaged 4 *operations* per patient. One pathologic survey^(1j) revealed that 78 per cent of ovaries and 30 per cent of uteri removed showed *no* disease.

The possible effect of gynecologic surgery on apparently well adjusted women is revealed in a report that 40 per cent of the women undergoing pelvic operation⁽²⁾ had agitated depression *postoperatively*.

The problems facing a physician when a woman presents symptoms referable to the pelvis or female organs are manifold: (1) Is the symptom attributable to real disease? (2) If so, is a surgical procedure indicated? (3) What are the patient's motives in seeking treatment, particularly if she actively requests surgery? (4) What are the patient's expectations regarding the treatment? (5) If surgery is to be performed, are there any steps which can be taken to avoid postoperative difficulties?

This paper is a preliminary report of a project begun at Duke Hospital in which an attempt is being made to:

1. Determine the per cent of gynecologic operations in patients with psychiatric or psychosomatic illness and compare with control group

2. Investigate the reasons for pelvic surgery in psychiatrically disturbed patients, with an attempt to clarify the cause and effect relationships

3. Clarify the types of women requesting surgery, types of symptoms complained of, and most frequent psychologic results of gynecologic operations

4. Seek out differences in psychiatric women patients, with or without a history of gynecologic surgery.

The aim is to seek out possible cues which the physician can use in evaluating women patients who request surgery, or who have pelvic complaints for which surgery may be contemplated. Because of lack of time, however, much pertinent data will be excluded from this presentation.

Material and Methods

One hundred and seventy-five patients (175) were investigated. These represented consecutive psychiatric referrals from the general wards of Duke Hospital. In addition to the standard psychiatric interview which was obtained from 122 of these patients, 53 patients from one medical ward were exposed to at least two separate interviews. This served as a check on the accuracy of psychiatric diagnosis as well as to obtain more detailed information about the personality structure of the patient. In

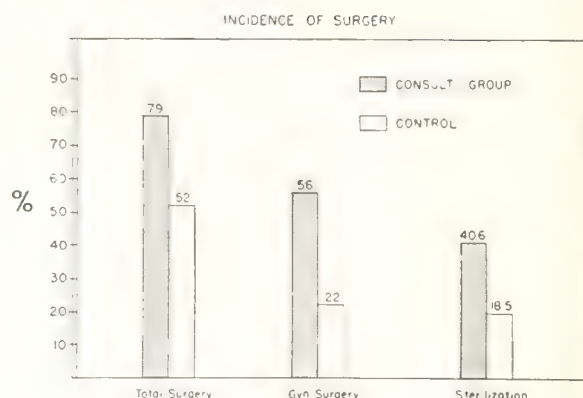


Figure 1

addition, during a 30-day period *all* admissions to the same medical ward were reviewed. The medical personnel of the ward, not knowing the nature of the research, continued to refer patients for psychiatric evaluation as usual, and when those patients were subtracted, a group of 54 medical ward patients who had not been referred for psychiatric consultation had been evaluated. These 54 patients represent a control group.

Most of the subjects received at least one psychologic test, while a limited number received a complete battery of tests.

Gynecologic surgery considered in this study excluded breast surgery, childbirth procedures (such as caesarean sections), and urologic procedures. It should be noted that these exclusions would tend to reduce the per cent of gynecologic operations reported. Patients under age 16 were arbitrarily excluded.

Results

Figure 1 shows our rather startling findings. Seventy-nine per cent of the psychiatric patients had a history of surgery, as compared with 52 per cent of the control group. Fifty six per cent of the consults had gynecologic surgery as compared with 22 per cent of the control group. It was also startling to note that more than 40 per cent of the psychiatric patients had been sterilized, while only 18.5 per cent of the control group had been sterilized.

Table 1 shows the relative severity of the surgical procedures. In the gynecologic group, it is interesting to note that of the major procedures, 32 per cent were hysterectomies, 24 per cent were tubal ligations, and 25 per cent were salpingo-oophorectomies. Eighty per cent of the minor procedures consisted of dilatation and curettage.

Table 1
Percentage of Patients with Major
Surgical Procedures

	Consult Group	Control Group
Major surgery (any type)	69	37
Major gynecologic surgery	48	20
Major surgery in patients not having gynecologic procedures	18	17

In the psychiatric consult group, 69 per cent of all patients had a history of major surgery, as compared with 37 per cent of the controls. Forty-eight per cent of the psychiatric patients and 20 per cent of the controls had major gynecologic surgery. Eighteen and 17 per cent respectively of the patients without gynecologic surgery had had major operations. The outstanding difference then, appears to be the higher percentage of patients with major gynecologic procedures in the psychiatric consult group.

When the number of operations per patient for the various groups are compared (fig. 2), gross differences are at once apparent. There were only 1.28 operations per

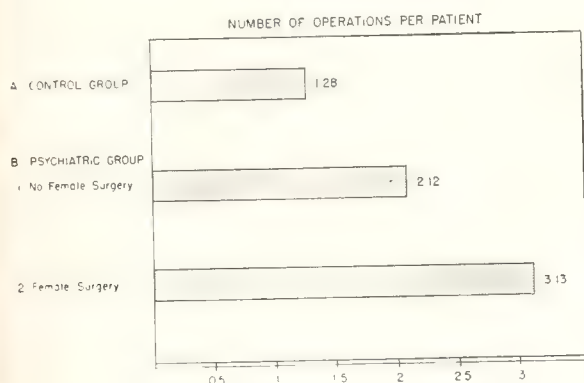


Figure 2

patient in the control group in contrast to more than 2 per patient in the psychiatric group. In the consult group, those patients with a history of non-gynecologic surgery only had had 2.12 procedures per patient, while those who had undergone gynecologic surgery had had more than 3 operations per patient.

It may be important to note that patients undergoing gynecologic surgery most frequently had had other operations as well; only one fourth of these patients had had gynecologic procedures only.

The higher incidence of surgery in the consult group naturally would be less signi-

Table 2
Average Age (Years) of Surgical Patients

	Consult Group	Control Group
When reviewed	40	46
At first major procedure	27	33
At first gynecologic procedure	29.5	32
At sterilization	30	32

ficant if these had been older patients. Table 2, however, shows that they were, on the average, younger than the non-consult group. It has also been reported that surgery has a more profound influence on younger subjects. Although on the average first major procedures did occur a few years earlier in the consult group, it was felt that age differences were not striking enough to be significant. Nevertheless, it may be important to mention that in our most seriously disturbed group (consisting of 4 psychotic patients) the average age at the time of the first major operation was 20.2 years.

In addition, an analysis of the incidence of surgery in our younger group (25 to 35 years of age) as compared with the more than 35 year old group revealed that the number of operations in younger patients is just as high as in the older group. Thus the incidence of surgery in the emotionally ill group has not decreased, even with present-day improvements in diagnosis and treatment.

Indeed the distressing fact is that in many aspects our data revealed a *higher* incidence than that reported in previous studies. It is possible, however, that our source of material and other factors may be responsible for the apparent increase.

Psychiatric Data

In a review of the types of psychiatric disturbances seen in our consult group, it was noted that no one illness predominated. Indeed, the consult group could, with a few exceptions to be mentioned, represent a cross-section of the standard A.P.A. nomenclature.

It was at once apparent, however, that whereas character disorders were manifested in only 39 per cent of the patients without gynecologic surgery, they were seen in 60 per cent of the group which had undergone gynecologic surgery. Most of these cases were, by the nature of our material, nonpsychotic; but of the 4 patients who

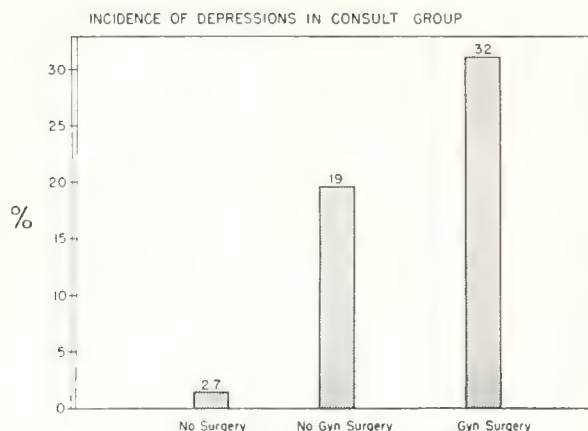


Figure 3

were psychotic or borderline all had undergone gynecologic surgery and 3 had been sterilized.

Since 40 per cent of the psychiatric group had been sterilized, and since the psychologic implications of sterilization are clear, these data were further analyzed with reference to possible psychiatric correlation. It was at once clear that one half of the sterilized group verbalized feelings of bitterness at not being able to have children, of "not feeling right," or of feeling inadequate as women. Ninety per cent of the group that either attributed a major part of their symptomatology to the surgery or who had had a psychosomatic illness subsequent to the operation had been sterilized. The converse was also true. Only 10 per cent of those who did not relate symptoms to surgery or manifest psychiatric illness subsequently had been sterilized.

Among patients with non-gynecologic surgery, none related psychosomatic or psychiatric symptoms to the operations.

Thus it would appear that if surgical procedures play a role in the psychologic functioning of an individual, gynecologic procedures and especially sterilization are of particular importance.

Since at least one authority⁽²⁾ had reported a high incidence of postoperative depressions, our data were also subjected to this analysis. Figure 3 shows the incidence of all depressions in the consult group. While less than 3 per cent of the psychiatric group without surgery revealed depressive symptomatology, the incidence of depression jumps to 19 per cent in the non-gynecologic patients, and to 32 per cent in pa-

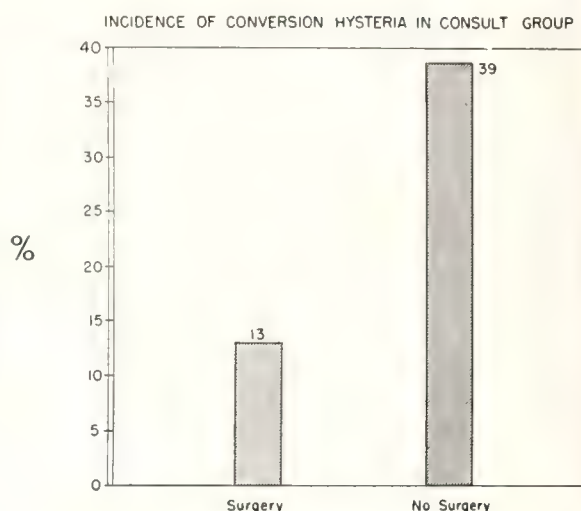


Figure 4

tients undergoing gynecologic surgery. Thus, although many other factors must be operative, our findings do suggest some correlation between the self-depreciation and self-condemnation of depression and surgical procedures, particularly gynecologic operations.

Among those who had had gynecologic operations, lowered self-esteem, less acceptance of the self as a woman and as an individual, was seen over and over again.

Previous investigators have also reported a high incidence of hysteric reactions in patients with pelvic surgery. This was *not* apparent in our study (fig. 4), where more than twice as many cases of conversion hysteria were seen in patients without surgery (39 per cent) as compared with patients who had been subjected to operations (13 per cent). It is possible that in recent years the diagnosis of hysteria has been less difficult to make, thus resulting in fewer operations in patients with hysteria.

The incidence of psychophysiologic reactions (that is, psychosomatic reactions) showed distinct differences in the various groups — 58 per cent in the gynecologic group as opposed to only 34 per cent in the non-gynecologic group. Of these reactions, two types seemed to stand out in importance: tension headaches, and particularly gastrointestinal reactions. As noted previously, the incidence of these psychophysiologic reactions was much higher among sterilized women.

The incidence of peptic ulcer in women is,

at present, only about one-tenth that reported in men. It is also well known that women with peptic ulceration tend to suffer deeply from psychiatric ailments. It has been pointed out that these women have much conflict about their femininity⁽³⁾; 7 cases of peptic ulcer were seen in our group. All 7 patients had been sterilized. No ulcers were seen in any other group. This admittedly small but suggestive finding certainly implies that sterilization performed upon women who are unsure of their role in life, already uncertain about their femininity, will tend to increase their conflict.

Comment

Possible explanations for the higher incidence of surgery in psychiatrically ill group may be found in the following types of patients:

1. Emotionally ill patients who seek surgery as a solution to the neurotic problem. Many examples of this type were seen, including a few flagrant examples of the polysurgical addict. At best the surgery can only provide temporary relief, since it is a neurotic solution to a problem. Thus the neurosis continues after the surgery.
2. Apparently well individuals who manifest psychiatric disorders following surgery. Examples of this group seen in our study appeared to fall into two sub-categories.
 - a. Patients with latent personality problems in whom the surgery intensifies a specific conflict which is neurotically dealt with—that is, depressions after sterilization procedures in women already having difficulties a specific conflict which is feminine function.
 - b. Relatively stable patients who have been inadequately prepared for surgery—such as the substitution of a major sterilizing procedure for a minor procedure without the patient's knowledge.
3. Patients whose initial gynecologic complaints may have been on a psychosomatic basis. In these cases the operation was ineffectual in resolving the underlying conflict.
 - a. Overt neurosis developed after surgery.

- b. Another psychosomatic disease occurred after surgery.

Most of the psychiatric patients in the present study appeared to fall into one of the above three groups—namely, (1) those seeking surgery for neurotic problems, (2) those manifesting emotional illness following surgery, and (3) those having psychosomatic gynecologic disorders.

Further investigation of a group of patients prior to gynecologic surgery is needed, however, before patients can be more definitely categorized.

These findings imply a need for: (a) increasing vigilance in the interpretation of symptoms having a psychiatric basis; (b) increasing awareness of possible psychosomatic implications in a variety of gynecologic disorders, such as menorrhagia; (c) better pre- and post-operative psychologic care. Our findings, in addition, would suggest special vigilance in patients being considered for sterilizing procedures.

Summary

A high incidence of gynecologic surgery, as well as an increased number of operations per patient, was found in a group of patients referred for psychiatric consultations. Sterilization produced more postoperative psychologic distress than other operations.

Certain differences were found between the psychiatric patients who had undergone gynecologic surgery and those who had not: for instance, the incidence of depressions was higher and the incidence of conversion reactions lower in the patients who had had gynecologic surgery. Furthermore, a much greater incidence of psychophysiologic gastrointestinal reactions, particularly duodenal ulcers, was seen in patients who had had gynecologic operations. There appears to be some relationship between this disorder and gynecologic surgery.

The self-acceptance of the patients who had had gynecologic operations appeared to be markedly lower, with much more frequent expressions of feelings of inadequacy and failure, than in other women patients.

The authors are indebted to Dr. Bernard Bressler and Dr. Louis Cohen for their invaluable assistance.

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The Application of Exfoliative Cytology in Obstetrics and Gynecology

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Exfoliative cytology has been accepted as a valuable asset in the diagnosis and control of gynecologic cancer. One may consider that a gynecologic or obstetric service is not complete without this diagnostic adjunct. Unfortunately, Papanicolaou's method of cancer detection is not available to the majority of physicians in North Carolina. It is hoped that this situation can be remedied.

Exfoliative cytologic studies are not of prime importance in patients who present clinical evidence of cervical carcinoma or in patients suspected of endometrial cancer, because in these cases routine diagnostic procedures are obligatory. The studies are of greatest value, perhaps, in the detection of covert invasive squamous carcinoma and noninvasive carcinoma, and in the identification of patients with cervical anaplasia

which is less severe in character than that associated with intraepithelial carcinoma.

Classification

The classification of genital cytology, as we employ it, briefly is as follows: Types I and II indicate, respectively, essentially normal and abnormal but benign cytologic changes. Type II-A represents the earliest indications of atypia that we are able to recognize. Type II+ signifies anaplastic changes, but less severe than those classified as Type III. Under Type III are classified the atypical findings which we believe represent intraepithelial carcinoma. Cytologic abnormalities which raise a suspicion of malignancy also are classified as Type III. Types IV and V indicate that we believe cancer cells are present.

The following sentences appear on our cytology report blanks: "No patient should be treated for a malignant disease on the basis of this report alone. This report is an interpretation of exfoliated cells and is not a pathologic diagnosis. Therefore cytologic abnormalities classified in Types III, IV and V should be verified by pathologic studies."

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Read before the Section on Obstetrics and Gynecology, Medical Society of the State of North Carolina, Pinehurst, May 4, 1955.

When the term "diagnosis" is used in this paper it refers to the pathologist's reported opinion based on tissue studies. The terms Stage O carcinoma, intraepithelial carcinoma, carcinoma *in situ*, and noninvasive carcinoma are used synonymously.

Percentage of Error

We test the correctness of our cytologic interpretations by comparing them with pathologic reports. The false-positive error may be calculated in various ways. The method which we believe produces the most accurate result but which incidentally gives the largest error figure is as follows: The total number of interpretations of cancer is divided into the number of false-positive interpretations. The quotient represents the percentage of error. Our current false-positive error is approximately 5 per cent. The over-all false-negative error is derived by converting the number of cancers missed into percentage error. It usually ranges from 9 to 13 per cent. This error for squamous cell carcinoma varies from 5 to 8 per cent, whereas for adenocarcinoma of the endometrium it usually ranges from 30 to 33 per cent.

The large error in recognizing adenocarcinoma justifies an explanation. If the number of missed interpretations due to the absence of intrauterine elements for study were subtracted prior to calculation, the error would be reduced to approximately one-half, or about 15 per cent. The remaining figure of approximately 15 per cent represents an error chiefly due to our inability to recognize adenocarcinoma in atypical hyperplasia of columnar tissue.

Material and Methods

The data to be presented have been derived from 171,000 cytologic studies on approximately 39,000 gynecologic patients and 6,000 pregnant patients. Material for smear preparations is obtained preferably by aspiration. The vaginal smear, comprised of material from the posterior fornix, is used chiefly for an evaluation of estrogenic activity. Preparations made from the external cervical os and cervical canal are used in the detection of uterine cancer.

Purposes Other Than Cancer Detection

Genital cytologic studies are used for purposes other than cancer detection. Princi-

pal among them is the estimation of estrogenic activity as judged by the status of the vaginal epithelium.

Patients of premenarchal ages

In premenarchal individuals cytologic studies are done primarily to identify increased estrogenic stimulation, to determine the cause of vaginal discharge, or to recognize the menarche.

Patients of childbearing ages

Requests are made for studies of vaginal epithelium in women of childbearing ages for the identification of normal estrogenic effects on the vaginal mucosa and for evidence of *anovulatory cycles*. We are asked to look for indications of a decreased estrogen supply to aid in the clinical diagnosis of: (1) untimely ovarian failure; (2) temporary absence of uterine bleeding, non-physiologic; (3) Stein-Leventhal syndrome; (4) normal postpartum state; (5) recent abortion; (6) inevitable abortion; (7) preclimacteric changes; (8) early menopause.

Postmenopausal patients

Estrogen evaluations are requested in studies of postmenopausal patients who have histories of estrogenic therapy or are suspected of having had it, and when a functional ovarian tumor is suspected.

As pregnancy test

Vaginal cytology is used also as a pregnancy test. Its value for this purpose seems limited, since errors may occur when there is vaginal irritation, infection or infestation, when the characteristic navicular cells are absent, or when these cells occur in non-pregnant patients. Navicular cells of the kind found during pregnancy often predominate during the follicular phase of the menstrual cycle in young women, in the puerperium, and during the climacteric.

Exfoliative Cytology In Cancer Detection

Cytologic studies are used routinely for cancer detection in both gynecologic and obstetric patients. No age limits are observed.

Patients of premenarchal ages

In gynecologic patients, smear studies are made on patients of premenarchal ages

to aid in the identification of precocious uterine bleeding due to a pathologic process in the pelvis and, on occasion, to distinguish between this and normal menarche. These studies also may differentiate between inflammation due to infection or trauma and malignancy.

Patients of menstrual and postmenstrual ages

Exfoliative cytology is used as a screening procedure to identify early anaplasia, noninvasive carcinoma, and cancer. It becomes a "cancer-control" measure in following patients who have been treated for genital cancer. Cytologic studies often provide the first indication of residual or recurrent disease. The sensitivity of genital tumors to roentgen radiation is not always reflected in vaginal cytology. Tumor growth may be arrested effectively by irradiation without causing related changes in the normal vaginal epithelium. Conversely, changes due to irradiation may occur in vaginal cells in the presence of radioresistant tumors. Effective tumor irradiation, however, usually is accompanied by correlative cytologic alterations in the vaginal epithelium.

Cytologic studies are used specifically at times to distinguish cancer from leukoplakia, inflammatory processes, and granulomatous lesions of the vulva or of the cervix. *Granuloma inguinale* may be identified in properly prepared smears.

Use during pregnancy

Cytologic studies are employed routinely in pregnant patients of any age. Cervical smears are not made routinely during the third trimester. Smear studies are used primarily in these patients to detect intraepithelial carcinoma and less severe anaplasia. Studies on pregnant patients who have these lesions are important during the pregnancy as well as following delivery. The purpose of these studies is to correlate antepartum and postpartum cytologic alterations. Atypical cervical epithelium has been seen in the smears from a pregnant girl 14 years of age. In the course of cytologic studies it is necessary at times to distinguish between trophoblastic elements and squamous cell carcinoma. Requests are made for studies to show evidence, if possible, of chorio-epithelioma or molar degeneration.

Table 1
Cytologic Classification of 263 Diagnosed Intraepithelial Carcinomas of the Cervix
(January 1, 1947–March 31, 1955)

Type	Totals	Per Cent of Total
No interpretation	3	1.1
I	0	0.0
II	7	2.7
IIA	6	2.3
II+	19	7.2
III	?	?
? Intraepithelial cancer	39	14.8
Intraepithelial cancer	58	22.1
Intraepithelial cancer,		
? invasion	34	12.9
? Invasive malignancy	27	10.3
V		
Squamous cell ca.		
? intraep. ca.	21	8.0
Squamous cell cancer	49	18.6
Totals	263	100.0

Detection of Intraepithelial Carcinoma of the Cervix

When one considers that intraepithelial carcinoma of the cervix, Stage 0, is defined only by histopathologic studies, it becomes evident that this diagnosis is not to be made from desquamated cells. There are certain cytologic criteria, however, which enable the exfoliative cytologist to suspect the presence of a lesion that may be limited to the epithelium. Full development of the lesion may be questionable on a cytologic basis, whereas cytologic changes may be present in sufficient numbers to indicate possible early invasion in addition to carcinoma *in situ*.

Table I shows that in 263 carcinomas *in situ* of the cervix, only 58, or 22.1 per cent, were recognized correctly by cytologic studies. The table also shows that in 152 of these lesions, or 57.8 per cent of the total, intraepithelial carcinoma was considered in the cytologic interpretations. It can be seen, furthermore, that cytologic studies indicated invasive squamous carcinoma in 49 patients, or 18.6 per cent, when pathologic reports describe only noninvasive carcinoma. It is not important that exfoliative cytology in our hands does not identify intraepithelial carcinoma *per se* with great accuracy. It is important that our interpretations, however expressed, identify patients who have intraepithelial carcinoma of the cervix, and often when there are no clinical manifestations. When noninvasive lesions are demonstrated pathologically, permanent arrest of

Table 2

Ages of 263 Patients with Intraepithelial Carcinoma of the Cervix and 935 Patients with Squamous Cell Carcinoma of the Cervix Expressed in Five-Year Age-Groups and Per Cent of Total

(January 1, 1947–March 31, 1955)

Intraepithelial Cancer of the Cervix			Squamous cell ca. cx.	
No.	Percent	Age Groups	Number	Percent
1	0.4	15-19		
15	5.7	20-24	7	0.7
36	13.7	25-29	39	4.2
45	17.1	30-34	90	9.6
48	18.2	35-39	126	13.5
45	17.1	40-44	102	10.9
30	11.4	45-49	148	15.8
15	5.7	50-54	139	14.8
11	4.2	55-59	97	10.4
6	2.3	60-64	70	7.5
9	3.4	65-69	54	5.8
2	0.8	70-74	35	3.7
		75-79	18	1.9
		80-84	9	1.0
		85-89	1	0.2
Totals				
263	100		935	100.0

19 to 71 years Age-Range 21 to 85 years
39.3 years Average Age 48.4 years

the disease becomes a therapeutic probability.

Table 2 divides 263 intraepithelial carcinomas of the cervix according to five-year age-groups and percentage of the total. Approximately one-fifth (19.8 per cent) of these lesions occurred in patients *less than 30 years of age*. Thirty-seven per cent of these cases were found in patients less than 35 years of age, which is the lower age limit specified in the cancer detection and diagnostic centers of this state. The ages of the patients involved ranged from 19 to 71 years. The average age was 39.3 years. The majority of these patients comprised a part of a clinic population. In this sense, they might be regarded as a selected group. Only a small percentage of the patients, however, had complaints referable to cervical disease.

Table 2 also presents, for comparison, corresponding data on 935 patients who had squamous cell carcinoma of the cervix. The ages ranged from 21 to 85 years. The average age was 48.4 years.

The problems which arise when the diagnosis of carcinoma *in situ* is made are familiar and seriously involve all concerned. The pathologist has the responsibility of showing, within the bounds of his facilities, that the lesion is limited to the epithelium. The patient must comprehend the potentialities of the disease. The clinician must decide on a method of treatment. There is no question that pathologists who are interested in gynecologic pathology should be given special aid for the study of this currently prominent cervical lesion.

Early anaplasia

It is felt that, as a research problem, the most important patients studied are those who have cervical anaplasia of a less severe degree than that characterizing intraepithelial carcinoma. Our associates in the Department of Pathology describe these changes, observed in histopathologic studies, as cervical metaplasia or hyperplasia or both, with marked atypicalities. These atypicalities often are multifocal in origin. The aberrant cells are identified in our classification as Type II+. The patients are being followed with cytologic studies. A statistically insignificant number of these patients, who have been followed for several years, now have cervical epithelial atypia classified as Type III. Eventually this group of patients may provide positive and/or negative data on cervical carcinogenesis. Obviously, the potential for cancer prevention in this group of patients would be high.

Conclusion

Optimum results from exfoliative cytology depend upon the cooperative participation of those involved. The patient must be willing to return, if necessary, for repeated cytologic studies. The clinician should understand the limitations of cytologic technique as well as its value. The pathologist should be interested and competently trained in gynecologic pathology, and should have the necessary facilities to insure adequate studies. The exfoliative cytologist should be conservative, not because of the lack of experience, but as a result of experience.

Lobar Consolidation in Psittacosis

G. E. KOURY, M.D.*

BURLINGTON

Reports of isolated cases help the practicing physician by calling his attention to specific diseases. Quite often a diagnosis is missed because the disease in question is not considered prevalent enough to warrant adequate consideration. Unfortunately failure to report isolated cases creates a gap between the reported case rate and the actual incidence of a disease. This situation holds true for such conditions as periarteritis nodosa, disseminated lupus, Sheehan's syndrome, thyroiditis, myxedema, and myxedematous heart disease.

With the increasing demand for parakeets and parrots bringing a larger segment of the population in contact with these birds, an increase of psittacosis is anticipated. This disease responds readily to the antibiotics, but unless physicians remain alert, the exact diagnosis will not be made.

Definition

Psittacosis—also called ornithosis or parrot fever was recognized as a clinical entity during the latter part of the nineteenth century, when it was referred to as pseudotyphus. The disease was again recognized in Switzerland in the late 1920's, and within 10 years had aroused world-wide interest because of its appearance in 12 different countries. The disease is caused by an elemental body which falls in the group of large viruses. This group of viruses is characterized by the formation of intracellular inclusion bodies. The infective bodies usually have a diameter of 300 to 450 Mache units.

Epidemiology

The disease is spread by contact with parrots, parakeets, pigeons, ducks, chickens and doves, and indeed by every known avian. The ways by which psittacosis virus is transmitted from birds to man, in order of importance, are as follows: (1) indirect transmission by air; (2) the handling of sick or dead birds, or contact with feathers, excreta or nasal discharges of sick or latently infected birds; (3) bite wounds⁽¹⁾. The disease has been found to be approximately

twice as frequent in women as in men, supposedly because of their closer associations with household pets. The ease with which inhalation virus induces pneumonic lesions in susceptible mammals points directly to the respiratory tract as the principal portal of entry for the virus. Over the years data on the spread of infection from person to person have continued to mount.

Clinical Picture

The incubation time varies from 7 to 14 days, with a mean of 10 days. The strikingly uniform manifestation of psittacosis is often confused with influenza, atypical pneumonia, typhus, and typhoid fever. The onset may be sudden and marked by chilly sensations, fever, anorexia, sore throat, malaise, photophobia, and severe headache, or it may be gradual and insidious. The temperature at the onset usually ranges from 100 to 102 F., and gradually rises. During the second week, in severe cases, it maintains a high level with slight morning remissions; in mild cases it may fall to normal on the seventh or eighth day. Termination by crisis is rare. Nose bleed occurs in 25 per cent of the cases.

A slight irritating dry cough during the first few days usually persists or increases in intensity; despite extensive lung involvement, however, the cough may be insignificant or absent through the entire illness. Abnormal signs are scanty over the lungs, and the earliest demonstrable ones may be confined to an area of dullness or percussion at the base of either lung. Crepitations may be heard as early as the fifth day.

The real extent of pneumonitis is usually not evident until roentgenologic examination has been made, revealing areas of consolidation in one or both lungs. Pleural reaction is generally slight or absent. The relative slowness of the pulse is characteristic, but in nearly all fatal cases the pulse becomes rapid and weak. Cyanosis and low blood pressure may be marked; collapse at some time during the illness is common. Insomnia, disorientation, apathy, mental depression, and even delirium may occur in all except mild cases. Nausea and vomiting are common, and

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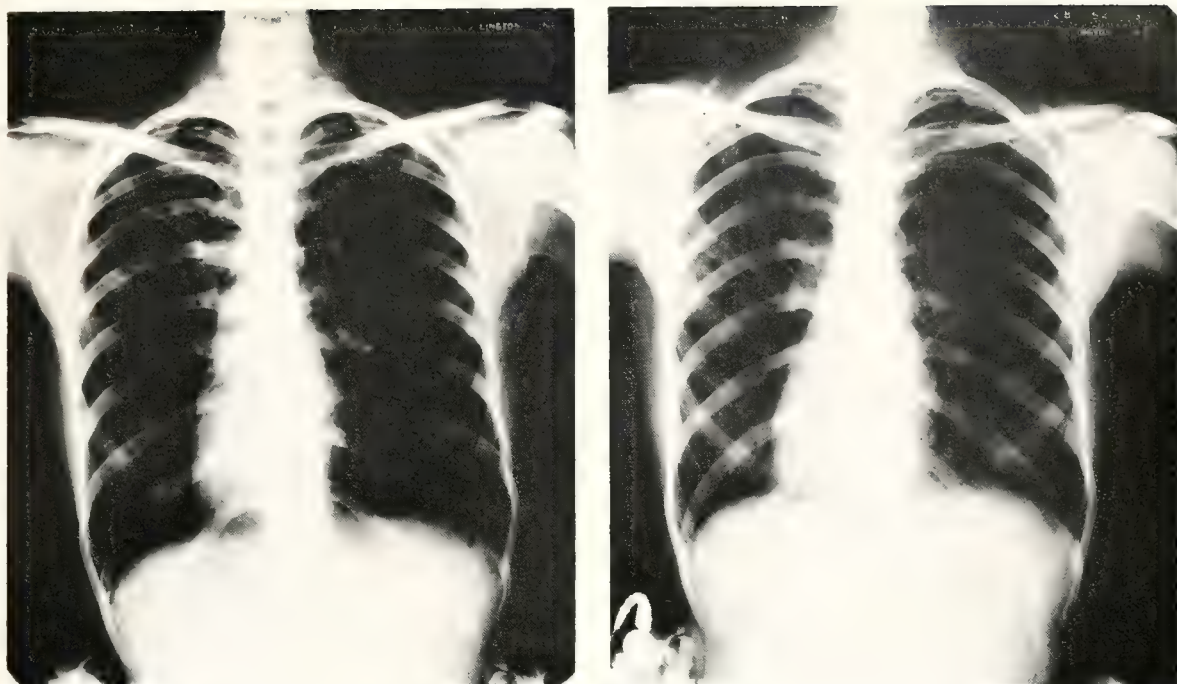


Fig. 1. Roentgenograms taken in 1952 during illness (left) and after treatment (right).

either constipation or diarrhea may be present. The spleen is palpable in very few cases. The leukocyte count is either normal or subnormal, and definite leukopenia is present in only 25 per cent of the patients; leukocytosis occurs late in the disease or during early convalescence. Relapses are by no means uncommon. Individuals recovering from an attack of psittacosis are generally believed to be resistant to reinfections; however, there have been well substantiated reports of second attacks after recovery. Apparently, immunity is not absolute, and the residual virus may be carried in the tissues occasionally, producing a carrier state.

Diagnosis

The diagnosis of psittacosis is made by the history of close association with avians, the characteristic clinical appearance, and the demonstration of complement-fixing antibodies. Complement-fixing antibodies may appear in the serum from four to eight days after the onset of symptoms—a serum titer of 1:16 or greater, when obtained from a patient with clinical manifestation suggestive of psittacosis, may be considered positive.

In a disease which previously had a 20 to 30 per cent mortality, treatment since the advent of Aureomycin has been dramatic

and effective. Authorities differ as to the effectiveness of penicillin — some claiming prompt improvement, and others reporting discouraging results⁽²⁾. The drug of choice is Aureomycin, in dosages of 2 to 3 Gm. per day. The patient is usually afebrile in 48 to 72 hours, and medication can usually be discontinued within five days after the onset of treatment.

Complement-fixing antibodies in patients infected with psittacosis may persist for years or for life, with the titers declining.

Case Report

A 33 year old white, housewife had been feeling well until May 24, 1955, when at about 4:30 P.M., she began having generalized malaise, severe headache and backache, with the development of chills and fever. She had been quite healthy since 1952, when she had been hospitalized for similar complaints. A parakeet in the home of the patient led to a presumptive diagnosis of psittacosis. At that time pneumonitis was present in the upper lobe of the patient's left lung. Response to penicillin was prompt; she became afebrile and asymptomatic 36 hours after the first dose, and was discharged after a nine-day hospital course. Unfortunately agglutination tests for psitta-

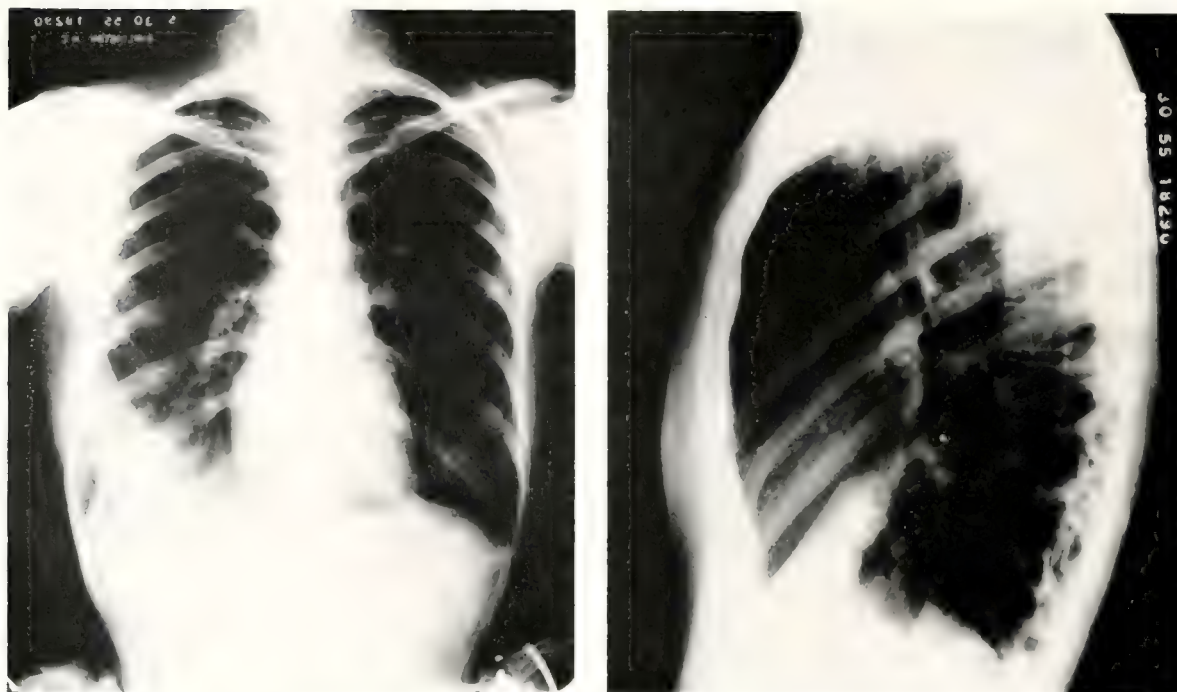


Fig. 2. Roentgenograms taken in 1955 during acute stage of illness.

cosis were not done then. Following this illness the patient had disposed of her parakeet and continued to feel well. The only other significant past illness was a total hysterectomy done in February, 1952, for endometriosis. The systemic review was negative.

The patient kept chickens which were cooped in her backyard; however, doves were constantly in the area of her chicken pen.

Physical examination revealed an acutely ill, well developed, well nourished white woman with no abnormal vascularization or pigmentation. The blood pressure was 110 systolic, 70 diastolic, pulse 84, respiration 16, temperature 103 F., weight 122 pounds, and height 64.3 inches. Examination of body revealed no significant abnormality except for the total hysterectomy.

A urinalysis was negative, and the following hemogram was obtained: hemoglobin, 13.7 Gm.; red blood cell count, 5,020,000; white blood cell count, 8,400, with 17 per cent stab forms, 72.2 per cent polymorphonuclears, and 27 per cent lymphocytes. A test for syphilis was negative. On May 27, the day after admission, epistaxis developed; otherwise the physical findings re-

mained unchanged. On May 29 she began to have a dry, hacking, nonproductive cough. A roentgenogram of the chest made on May 30 revealed consolidation of the lower lobe of the right lung. Agglutination tests for proteins—Ox₂, Ox₁₉, brucella, and typhoid—were negative. A second white blood cell count made on May 28, when the temperature was 102.5 F., was 6,700, with a differential of 10 per cent stab forms, 51 per cent segmented polymorphonuclears, 36 per cent lymphocytes, and 3 per cent monocytes. Agglutination tests for psittacosis done at the State Laboratory on May 30 revealed a titer of 1:256; a repeat study on June 9, 1955, showed a titer of 1:128. Malaria smear and blood culture were negative.

On May 30, 1955, the patient was started on 500,000 units of crystalline penicillin given every six hours. That night she experienced a chill, with subsequent elevation of temperature. On May 31, Aureomycin, 500 mg. given every 6 hours, was started. Seventy-two hours later her temperature was normal and she was asymptomatic for the first time.

The physical findings over the right lung were never striking. Fine sticky rales finally developed in the right lung base, but there was no physical evidence of consolida-

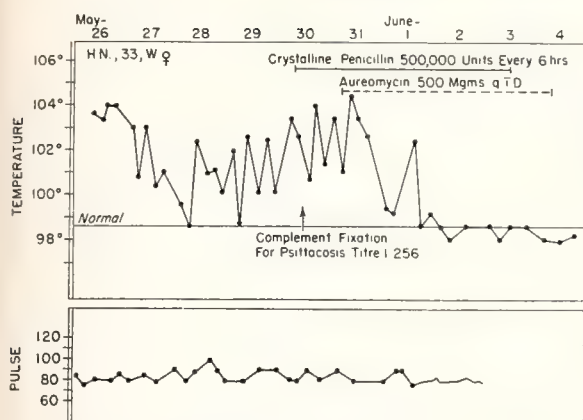


Fig. 3. Clinical course as manifested by febrile reaction and pulse rate.

tion. Pulmonary symptoms and findings were far out of proportion to the roentgenologic appearance of the lungs. The patient was discharged on the eleventh day of hospitalization. She has remained well.

Comment

A rapid survey of the literature failed to reveal another case of lobar consolidation which clinically and serologically fulfills the requirements for a diagnosis of psittacosis and psittacotic pneumonia. This patient's clinical appearance, blood count, negative cultures and agglutination tests, and the

paucity of respiratory signs and symptoms militates against a diagnosis of pneumonia of bacterial origin.

Summary

Psittacosis should be suspected and diagnosed more frequently than the incidence reported in the literature.

A case with a strong possibility of psittacosis on two different occasions is reported. Positive agglutination tests were obtained during the second illness.

This disease makes a dramatic favorable response to Aureomycin.

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Anesthesia for "Minor" Procedures

RICHARD E. SPENCER, M.D.

GREENSBORO

The association of the word "minor" with short or seemingly uncomplicated surgical or obstetric procedures has led to a false sense of security in the minds of both the laity and the medical profession. The classification of surgical procedures as "minor" or "major" by hospitals and medical organizations alike has done much to create the feeling of unimportance which has become attached to procedures falling within the "minor" category. Physicians who are not qualified to do more complicated surgical procedures are often privileged to do "minor surgery."

As early as 1903 Dr. Hubert Royster warned the medical profession against this feeling of complacency by declaring that "Minor surgery is that part of surgical practice which is done by the minor surgeon," and, "the more minor the surgeon, the more major the operation will become before he is through with it." Despite this warning, the term "minor"—with its connotation of unimportance has continued in common use.

It is well recognized that much is to be desired in the education of the laity as to the importance of anesthesia. What is even more alarming, however, is the failure of many of our own professional colleagues to

recognize the seriousness and importance of anesthetic procedures. This is especially true in regard to anesthesia for "minor" surgical procedures. The greatest offenders in this complacency are the surgeons and often the anesthesiologists themselves.

It is with this naive approach to anesthesia for so-called "minor" procedures that the author is most concerned.

The Importance of All Procedures

In the use of any agent which produces general anesthesia or which may cause complications such have been known to result from spinal, regional, or even local anesthesia, there can be no differentiation between major and minor procedures. Every anesthetic should be given with the surgeon's and the anesthesiologist's full realization that any anesthetic complication which may develop during a so-called "major" operation can develop during shorter and seemingly less difficult procedures. In fact, many cases which are described as minor are of an emergency nature, and the patient is frequently unprepared for surgery and anesthesia. In these cases the danger of complications and death from anesthesia is often greater than in patients who have been prepared for more extensive surgical procedures.

When a patient is taken to surgery for a technically long and difficult procedure, much consideration is usually given to his condition, his past history, the laboratory and x-ray findings, and the choice of anesthetic agent and anesthesiologist. The surgeon and the anesthesiologist take great care to assure both themselves and the patient that they will have access to everything that may be needed to meet any emergency which may arise.

Why, then, simply because a certain procedure has been classified as "minor," should one be lulled into a false sense of security wherein he fails to take precautions against possible complications? I believe there are a number of reasons, none of which are justified. Among these is the feeling that the patient need not be so deeply anesthetized for short procedures as for longer ones. This in itself tends to increase the incidence of complications. It is felt that the time required for a "minor" procedure does not warrant the time required to pre-

pare for a safe and adequate anesthetic. The surgeon may tend to use an inexperienced and inadequately trained anesthesiologist either because of the time factor involved in obtaining the services of a trained anesthesiologist or because anesthesia is done on a referral basis. Certain precautions may seem unnecessary, as they may have been taken repeatedly without obvious need in previous cases.

Again, because the laity is uninformed about the importance of anesthesia and insurance companies are largely uninformed or believe they should pay less for anesthesia given for so-called "minor" procedures, the surgeon hesitates to call for the services of a trained anesthesiologist. These and other reasons can be summed up in three words: ignorance, inexperience, and negligence.

Except in extreme emergency, no local, regional, or general anesthetic should be administered without the benefit of history, physical examination, essential laboratory work, resuscitative equipment — including drugs of an emergency nature, suctioning apparatus, and means for giving oxygen under positive pressure—and last but not least, an anesthesiologist capable of recognizing and maintaining a patent airway under the most trying of conditions.

In considering anesthesia for any procedure, "major" or "minor," it might be well to remember the words of Gordon Murray:

With the exception of hemorrhage at operation, a disaster which has receded almost in proportion to the training of surgeons, there is little a surgeon can do in orthodox surgery that approaches in swiftness the possible fatal effect of improper anesthesia. The surgeon's errors usually begin groaning and moaning in a matter of hours, days, weeks, or years, but those of the anesthesiologist flash by like the crack of doom Considering how every anesthesiologist with every anesthetic administration enters the outer fringes of the cloud of death, I remain thankful that my lot has fallen in the less turbulent ways of surgery.

Summary

In considering anesthesia for any procedure, it should be remembered that anesthesia for "minor" procedures is essentially the same as that for more difficult and prolonged operations. A paper discussing agents and techniques, therefore, would have to be an all-inclusive textbook on the subject of anesthesia.

This paper has been written in the hope of encouraging the education of both the laity and the medical profession as to the importance and seriousness of all anesthetic procedures. It has pointed out the dangers inherent in the art of anesthesia, especially for those procedures which are all too often taken too lightly. Finally, it is hoped that this paper will encourage all those engaged in the art of anesthesia to seek additional training, skill, and knowledge so that they will be better equipped to meet all anesthetic emergencies.

Discussion

Dr. D. L. Crandell (Winston-Salem): Dr. Spencer has given an excellent presentation of an important and timely subject—important because the majority of anesthetics are given for the so-called minor procedures, and timely because anesthesia has advanced to the stage that some of it is unsafe and physiologically unsound and should no longer be tolerated.

Our large medical centers commonly use modern anesthetic techniques for the majority of operations. Anesthesia for tonsillectomy and adenoidectomy, however, is usually delegated to the inexperienced anesthetists who may choose either the open ether and inhalation technique or some modification of it. In order to maintain good ventilation and prevent hypoxia, an endotracheal tube is imperative for tonsillectomy and adenoidectomy. The surgeon is thereby enabled to operate carefully and maintain good hemostasis.

Complete removal of the tonsillar tissue can only be done by careful and unhurried surgery.

In the past 10 years 8 per cent of the deaths occurring on the operating table have resulted from tonsillectomy and adenoidectomy. To my knowledge the majority of these deaths were the direct result of hypoxia and hypercarbia caused by poor ventilation and not of toxicity or overdosage of an anesthetic agent. Thus, in order to decrease the mortality in tonsillectomy and adenoidectomy, which has been called a minor surgical procedure, I think it imperative that these operations be done under endotracheal anesthesia.

In no other anesthetic procedure is the principle so well applied that a good surgeon deserves a good anesthetist, and a poor surgeon needs one.

Dr. H. L. Brockman (High Point): I wonder how the mucus and blood are kept out of the trachea during endotracheal anesthesia.

Dr. Spencer: While I was in charge of the anesthesia department of the Massachusetts Eye and Ear Infirmary we had very few surgeons who would tolerate the use of an endotracheal tube in their patients. With those few cases we used an endotracheal tube without a cuff but with a small bit

of packing, not more than 3 or 4 inches long, wrapped around the tube and pushed down to the level of the glottis. On occasion a little blood-stained mucus passed beyond that point, but there was no evidence of a clot passing into the trachea.

Without the use of an endotracheal tube I believe it to be imperative that the head be kept in a dependent position so that the blood may be drawn out by suction before it approaches the cords, and only in the case of major hemorrhage does any enter the trachea.

Another point to be remembered is that oxygen should be used in conjunction with ether. Many practitioners use air for vaporization of ether, and there is no question in my mind that such patients are hypoxic. Hypoxic is probably the most direct cause of death and in many cases is the result of anesthesia given without the administration of oxygen.

Dr. Daniel L. Crandell (Winston-Salem): At Baptist Hospital we use an endotracheal tube in all tonsillectomies and adenoidectomies on children. We usually pack the throat so that the surgeon can use suction freely without fear of drawing in ether vapor. This was the trouble with the old technique. The patient would cough and sputter, and the post-operative period was much less smooth than it is today.

Dr. John Martin (Dunn): We lack trained anesthetists for intubation, a common problem in small towns.

I have been practicing for 30 years without once using an endotracheal tube.

Dr. Crandell: What is your incidence of tonsillar tags which were left because the patient wasn't doing well and you had to hurry to get through?

Dr. Martin: I think removing the pillar constitutes more damage than leaving the tag. You can always go back and get the tag, but if somebody cuts the tube and removes the pillar, the damage is permanent.

Dr. Howard M. Ausherman (Durham): I think we must be realists. Intubation of the child for tonsillectomy is desirable, but, as has been brought out, there is no one capable of using the technique in many small towns. I believe that if all tonsillectomies in North Carolina were done under endotracheal anesthesia, with the unskilled personnel who would be forced to administer it, the morbidity would be increased. Intubation is an ideal to strive toward, but is unfeasible under present circumstances. In my opinion the next best choice in children is a modification of the Davis gag, which delivers the anesthetic vapor at the base of the tongue—particularly if, as Dr. Spencer suggested, oxygen rather than air is used.

Dr. R. L. Wall (Winston-Salem): No procedure or method is any safer than the person using it. In the hands of a skilled anesthetist, I would think that the endotracheal method is far safer. On the other hand, a good anesthetist who knows how to keep an open airway and good exposure, and who uses oxygen with the ether, is probably equally safe.

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FEBRUARY, 1956

VIRUS ENTEROCOLITIS

For some years medical opinion has been divided as to whether there is such a clinical entity as "intestinal flu." In the second edition of Harrison's "Principles of Internal Medicine," (page 1080), Friedewald states that the influenza virus does not produce gastrointestinal symptoms. In the section on viral diseases there was no mention of viral infection of the gastrointestinal tract. In the ninth edition of Cecil's "Textbook of Medicine" published a year later (1955), however, Dr. Irving Gordon has an excellent discussion of "Acute Infectious Non-

bacterial Gastroenteritis," which he says is due to a virus.

On page 3 of this issue, Dr. Philip Brown states that "The most widespread and frequent acute disease of the bowel is virus enterocolitis, commonly spoken of as the stomach or intestinal flu."

Both Drs. Brown and Gordon state that the symptoms are of short duration—12 to 26 hours—but that it may be several days before all is quiet on the intestinal front. Dr. Gordon gives the incubation period as one to five days, with an average of three days.

Those who received Dr. Morris Fishbein's "Pepys' Pages" for 1955 may recall his terse description of such an attack: "Toward evening seized suddenly by the 24-hour intestinal virus which works up and down."

Fortunately, the disease soon runs its course and is comparatively benign. Usually the only treatment needed is paregoric or codeine, and a bland diet. Scraped apple, once widely used, is still as effective as its more expensive pharmaceutical offspring containing pectin. Ginger ale is usually well tolerated. Dilute hydrochloric acid in tomato juice or buttermilk may allay nausea.

The mode of transmission is one of the most unpleasant features to contemplate. Both Brown and Gordon state that the virus is transmitted by the fecal-oral route. This emphasizes the importance of the Jewish custom of washing one's hands before eating.

* * *

FOOTBALL

As most of our readers know, Mr. Paul Amen recently left the Army's coaching staff at West Point to become head football coach at Wake Forest. In his salutatory remarks Mr. Amen said that he did not care for the boys who come to college just to play football, but that he expected his players to be just as interested in their textbooks as in the game.

It remains to be seen how Mr. Amen's philosophy will pan out—but he himself impressed all who have met him and heard him speak as a fine specimen of the type of boy he wants. His major interest in college was English, and many have remarked that he might well pass for a professor of English.

Mr. Amen's viewpoint is supported by two widely different sources. The first is the position taken in 1954 by the Phi Beta Kappa Senate in regard to the selection of institutions for chapters of that honor fraternity. The statement is quoted in part:

The Senate of the United Chapters therefore advises the Committee on Qualifications to require that an applying institution meet, as a minimum, the following standards:

1. Complete and direct control of athletic policies and procedures by joint action of the Administration and of authorized representatives of the Faculty;
2. Adequate safeguards against recruitment practices that contribute to the professionalizing of intercollegiate athletics;
3. Restriction of eligibility for varsity teams to students making normal progress toward a regular bachelor's degree;
4. Assignment of all scholarships, grants-in-aid, loans and jobs by a faculty Committee on Student Aid on the basis of need and/or academic distinction or promise, with no differentiation between athletes and non-athletes and with no "gifts" to individual students by persons or groups outside the control of the Faculty Committee. This means that financial assistance for athletes, including scholarships, grants-in-aid, loans and student jobs, will be in approximately the same ratio to the number of athletes in the student body as all financial assistance is to the total number of students.

The other source is the late Grantland Rice, whose life was dedicated to sports, and who was recognized as the dean of sports writers in this country. In his autobiography, "The Tumult and the Shouting," he devotes a whole chapter to an appraisal of football. While recognizing that it is one of the greatest games, he deplores the fact that players, both collegiate and professional, are taught to violate the rules of the game intentionally, so long as they are not caught.

It has been the idea of too many coaches that the main offense or penalty in breaking a rule was to be caught. "If you can get away with it, fine . . . just don't get caught."

While many coaches may be ethical, a great many still follow the old slogan of "Winning at any cost," no matter what rules are involved. When a coach has a bad team he will say jokingly, "I'm building character this year." There is no place for a joke in this situation. A coach that isn't building character deserves to be fired. No matter if he wins every game, he is doing

far more harm than good. If football isn't character-building it is no game to be played.

Football, one of the greatest games, can be made greater only if it is cleaned up and protected. It has taken more punishment than boxing has—and boxing, on the average, doesn't deserve to be mentioned with any decent sport. Comparatively speaking, football is in an entirely different setting. It has practically none of the thugs, crooks, cheaters, bums, and chiselers that boxing knows to a large degree.

The keenness to win—the will to win—is important. But the desire to win, even illegally, is too great. I'll admit I have hammered on these points over 40 years without making much of a dent. But if big changes, critical changes, are not made soon, football will die through its unwillingness to face up to its greatest mistake.

Even the most ardent fan must admit that there is an uncomfortable amount of truth in this statement. Let us hope that such a great game will be cleaned up from the inside. Football coaches, players, and fans alike should take to heart the lines from "Granny" Rice's finest poem:

For when the One Great Scorer comes to mark
against your name,

He writes—not that you won or lost—but how
you played the game.

* * *

THE SPCE

In the October issue of the *Journal of the Medical Society of New Jersey*, Editor Henry Davidson, in one of his characteristic original editorial fantasies, tells of a new organization—the SPCE (Society for Prevention of Cruelty to Editors). At the next convention of the SPCE, says Dr. Davidson, the Committee on Overworked Words is preparing a resolution to retire two phrases in too-common use. These phrases are "broad spectrum" as applied to antibiotics, and "therapeutic armamentarium."

This JOURNAL would like to commend Dr. Davidson's effort to invigorate the language and to offer at least two other suggestions for the Committee on Overworked Words to consider. One is that favorite of governmental employees, "to implement." The other is the five-word phrase, "is cognizant of the fact" instead of the five-letter word "knows."

Committees and Organizations

COMMITTEE ON CHILD HEALTH*

NEONATAL DEATHS

The Committee on Child Health of the North Carolina Medical Society is undertaking a study of neonatal deaths in North Carolina beginning January 1, 1956. The purpose of this study is to determine the causes of neonatal deaths. It is hoped that the information obtained will contribute to a reduction of infant mortality in North Carolina.

During 1956 this study will be confined to the neonatal deaths occurring in those North Carolina hospitals in which 500 or more live infants are delivered annually and will include all neonatal fatalities regardless of the place of birth.

A short questionnaire form has been specially prepared for this study. A form should be completed for each live-born infant who is under 28 days of age at the time of death. For the sake of accuracy it is requested that the data be recorded as soon as possible after the death occurs. The completed form will provide pertinent information concerning both the mother and the child. The Committee requests the cooperation of all physicians concerned.

A description of this study and a supply of the questionnaire forms have been sent to the director of each cooperative hospital, as well as to the chief-of-staff and to the physicians in charge of the obstetric and pediatric services. Requests for further information or additional forms should be addressed to:

The Committee on Child Health
Medical Society of the State of North
Carolina
809 West Chapel Hill Street
Durham, North Carolina.

*Members at this committee for 1955-1956 are as follows: Dr. Angus McBryde, Durham, chairman; Dr. Edward C. Curnen, Chapel Hill; Dr. Roy D. Daniel, Sylva; Dr. Donnie H. Jones, Jr., Princeton; Dr. J. Buren Sidbury, Wilmington; and Dr. F. A. Blount, Winston-Salem.

NORTH CAROLINA HEART ASSOCIATION

With cardiovascular disease causing more than one-half the deaths in North Carolina and in the United States, the importance of the doctor in providing leadership for the three-pronged attack on these diseases cannot be overemphasized. Doctors are needed who can extend their role of counselor and guide through participation in local heart associations and committees. They are needed to work on organizational problems and to lead in decisions regarding the three-fold program of (1) research, (2) education, both professional and lay, and (3) community service.

Over the past seven years, since the organization of the American Heart Association as a voluntary health agency, more than \$13,500,000 has gone into cardiovascular research through its nationally coordinated research fellowship and grant-in-aid-program. During the past year, some \$65,000 has been channeled into research in North Carolina's three research centers, from American Heart Association, North Carolina Heart Association, and local funds.

Professional education to keep doctors abreast of new knowledge, always a concern of the HEART program, has taken increased strides in North Carolina the past year, with symposiums held in Nags Head, Morehead City, Winston-Salem, Wadesboro and Kinston. Cardiac institutes were held with greater frequency in the state through the heart programs during 1955, institutes being held in Chapel Hill and Concord.

To establish the important partnership of an informed patient and a physician abreast of new knowledge, lay education has continued to receive considerable attention through community groups, schools, and the mass media.

In order to make every dollar count in reaching the problems of the estimated 10,000,000 individuals with cardiovascular diseases in the United States, community services, rather than direct patient care, is the third prong of the HEART program. Community Services which work to combine the resources of a Community to tackle the social and emotional problems of patients, to lessen duplication and to strengthen actual services, receive attention in North Carolina; as for example, case conferences which take place in some North Carolina towns, with the local heart association acting as co-ordinator.

Doctors are the backbone of the Heart Association. They are needed throughout its organization to help strengthen it and to enable the young (incorporated in North Carolina in 1950) but dynamic organization to reach the potential of which it is capable in any attack on cardiovascular diseases.

This year, through its Program and Budget Committee, under the direction of Dr. E. Harvey Estes, Jr., the entire program of the North Carolina Heart Association is receiving searching evaluation, and

goals are being set for the future. Advice and suggestions from all North Carolina doctors for improving and extending the important work in our state would be most welcome at any time, but especially now as we take this close look at our Heart Association.

(MRS.) FRANCES SIMMONS MCCONNELL
PRESIDENT

COMING MEETINGS

Heart symposium sponsored by the North Carolina Heart Association — New Ricks Hotel, Rocky Mount, February 22.

Postgraduate course for general practitioners sponsored by University of North Carolina School of Medicine—Chapel Hill, March 6, 7, and 8.

Postgraduate course sponsored by the University of North Carolina School of Medicine—Statesville and Albemarle, beginning March 13 and 14. (See News Notes from the University of North Carolina School of Medicine for schedule.)

Medical Society of the State of North Carolina, Annual Meeting—Pinehurst, April 29-May 2.

North Carolina State Board of Medical Examiners, meeting to interview candidates for licensure by endorsement—Pinehurst, April 30.

North Carolina Public Health Association, Annual Meeting—Charlotte, May 31-June 1.

American Academy of General Practice—Eighth Annual Scientific Assembly—Washington, D. C., March 19-22.

International Academy of Proctology, Eighth Annual Convention—Drake Hotel, Chicago, April 23-26.

Third National Cancer Conference, sponsored by the American Cancer Society and the National Cancer Institute of the Public Health Service—Detroit, Michigan, June 4, 5, 6.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. James V. Neel, associate professor of medical genetics, Heredity Clinic, University of Michigan, delivered the second Lee B. Jenkins Memorial Lecture of the University of North Carolina Medical School this year on January 19. Dr. Neel's subject was "Inherited Abnormalities of Human Hemoglobin."

The Lee B. Jenkins Memorial Lecture is an endowed lectureship established by Mrs. Lee B. Jenkins, Kinston, North Carolina, in memory of her late husband, industrialist and civic minded citizen of Kinston.

The first Lee B. Jenkins lecture was given last year by Dr. Alfred Chanutin, professor of biochem-

istry in the University of Virginia. His subject was "Iron Metabolism."

* * *

Dr. George C. Ham, chairman of the Department of Psychiatry of the University of North Carolina School of Medicine, addressed the members of the Association of Southern Professors of Psychiatry on the subject "Modifications Needed in Psychiatric Teaching" at the December 30 session of their meeting in Washington, D. C. He was also a member of the subgroup which met on December 29 to discuss "Resistances Encountered in Teaching Psychiatry in the First Two Years of Medical School."

* * *

Dr. Shepherd Liverant has joined the staff of Psychological Services in North Carolina Memorial Hospital as child psychologist. He also has a joint appointment as assistant professor in the Departments of Psychiatry and Psychology. Dr. Liverant recently received his Ph.D. at the University of Colorado. His previous training included work at the University of New Mexico where he obtained his B.S. and M.S. degrees, and Colorado Psychopathic Hospital in Denver. Dr. Liverant's appointment is part of the expansion of staff in the Psychiatric Center to provide more adequate treatment of child psychiatric problems.

* * *

Studies of a large number of unidentified "orphan" viruses, discovered in the course of research on polio, will be conducted at the University of North Carolina under a grant of \$25,253 from the National Foundation for Infantile Paralysis.

Effective January 1 the grant was announced jointly by Dr. W. R. Berryhill, dean of the School of Medicine, and Basil O'Connor, president of the March of Dimes organizations. Dr. Edward C. Curnen, Jr., professor of pediatrics will direct the investigation.

In recent years Dr. Curnen and his co-workers have been studying Coxsackie viruses, named for the New York town where they were found. In the course of these studies, a number of identified viruses were isolated in the laboratory here.

The study of many of these viruses by Dr. Curnen and his associates is part of a large scale project supported by the March of Dimes to learn more about the organisms, and particularly to investigate any relationship they may have to polio.

* * *

Dr. John H. Ferguson, professor of physiology, participated in the conferences of the Harvard Commission on Plasma Fractionation at Cambridge, Massachusetts, January 5-6, 1956.

* * *

Dr. Robert Ross, professor of obstetrics and gynecology, delivered a paper before the American College of Surgeons Sectional Meeting in Jacksonville, Florida, on January 18. The subject was "Conservatism in Pelvic Surgery."

A six-weeks' postgraduate medical program will begin in Statesville Tuesday, March 13, and in Albemarle Wednesday, March 14, for doctors in these areas. The programs for these two courses are as follows:

March 13 & 14—Statesville and Albemarle—Dr. Leandro M. Tocantins, Professor of Clinical and Experimental Medicine, Jefferson Medical College, Philadelphia: "Endocrines and Blood" and "Fundamental Principle in the Treatment of Hemorrhagic Disorders"

March 20 & 21—Dr. C. Everett Koop, Associate Professor of Surgery, University of Pennsylvania School of Medicine, Philadelphia: "Undescended Testicle: A Logical and Embryological Approach" and "The Philosophy of Abdominal Pain in Children"

March 27 & 28—No program, owing to the U.N.C. Medical Alumni Meeting at Chapel Hill

April 3—Statesville—Dr. Colin G. Thomas, Jr., Assistant Professor of Surgery, University of North Carolina School of Medicine, and Dr. Louis G. Welt, Professor of Medicine, University of North Carolina School of Medicine: "Diseases of the Thyroid: Diagnosis and Medical and Surgical Treatment"

April 4—Albemarle—Dr. Newton E. Fischer, Assistant Professor of Surgery (Otolaryngology), University of North Carolina School of Medicine: "Handling Ear, Nose, and Throat Problems in General Practice"

April 10—Statesville—Dr. Eugene A. Stead, Jr., Professor and Head of the Department of Medicine, Duke University School of Medicine: "Coronary Artery Disease" and "Endocrine Madness"

April 11—Albemarle—Dr. Fred K. Garvey, Chief of Urology, Bowman Gray School of Medicine of Wake Forest College: "Office Genitourinary Practice" and "Lower Nephron Disease"

April 17 & 18—Statesville and Albemarle—Dr. Sol Katz, Chief, Pulmonary Division, District of Columbia General Hospital; Adjunct Clinical Professor of Medicine, George Washington University School of Medicine: "Mediastinal Tumors" and "Procedures and Diagnosis of Pulmonary and Pleural Diseases"

April 24—Statesville—Dr. James T. Donnelly, Obstetric Consultant, North Carolina State Board of Health; Clinical Associate Professor of Obstetrics, University of North Carolina School of Medicine: "The Proper Use of Pitocin in Obstetrics" and "Hemorrhage in Pregnancy Associated with Defects in the Clotting Mechanism"

April 25—Albemarle—Dr. Colin G. Thomas, Jr., Assistant Professor of Surgery, University of North Carolina School of Medicine, and Dr. Louis G. Welt, Professor of Medicine, University of North Carolina School of Medicine: "Diseases of the Thyroid: Diagnosis and Medical and Surgical Treatment"

Meetings will be held at the Statesville Country Club and the Hotel Albemarle.

A three-day postgraduate medical course designed for general practitioners will be held in Chapel Hill, Tuesday, Wednesday and Thursday, March 6, 7, and 8. Tentative plans call for the presentation of subjects as follows:

TUESDAY A.M.—Joint program on dermatology and psychiatry

TUESDAY P.M.—Cardiovascular Diseases

WEDNESDAY A.M. AND P.M.—Medical Problems of Special Significance in Adolescence

THURSDAY P.M.—Cancer

THURSDAY AFTERNOON—Cancer

Complete information concerning the course is being sent to all North Carolina physicians.

* * *

Dr. Nathan Womack, professor and head of the Department of Surgery, University of North Carolina School of Medicine, spoke in New Orleans at the Maes Lectures on "Chronic Cystic Mastitis and Cancer of the Breast." The Lecture, sponsored by Phi Chi fraternity at Louisiana State University, was held January 13-17.

Dr. Womack also participated in examinations of the American Board of Surgery while in New Orleans.

* * *

Dr. Charles H. Barnett has been awarded a Cancer Institutional Research Grant in the amount of \$500 for the period ending August 31, 1956. This money will be used to help activate the Metabolic Ward.

Dr. Ernest Craigie has been awarded a USPHS grant in the amount of \$24,991 for the period January 1, 1956, through December 31, 1956. This is a renewal of Dr. Craigie's undergraduate cardiovascular training grant to be used in the purchase of equipment for making teaching more effective for securing personnel to work in the field of heart disease and assist with teaching.

Dr. Thomas W. Farmer has been awarded a grant by the USPHS in the amount of \$10,000 for one year for a project entitled "Cooperative Study of the Effectiveness of 1-Asparagine in Control of Seizures."

Dr. Dan A. Martin has been awarded a Research Fellowship by the American Heart Association for one year, starting July 1, 1956, in the amount of \$5,000.

Dr. Jeffress G. Palmer has been awarded a USPHS grant for a one-year period for research entitled "Investigation of Factors Influencing the Rates of Production and Destruction of Leukocytes."

Dr. Louis G. Welt has been awarded a USPHS grant in the amount of \$14,662 for the period January 1, 1956, through December 31, 1956, to continue a project entitled "Studies of the Factors Regulating the Internal and External Exchanges of Electrolytes and Water in Health and Disease."

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Dr. Isadore Meschan, professor and director of the Department of Radiology, will speak before the Cleveland (Ohio) Radiology Society on February 27, his title being "Objective Aöntgen Analysis of Spinal Disease."

* * *

Dr. Martin G. Netsky, professor of neuropathology, will participate in the Duke Medical School Neurology Graduate Seminar on March 7. The title of his paper is "Muscular Dystrophy." He will also take part in the two-day symposium scheduled at the Veterans Hospital in Salisbury on March 20 and 21, when he will speak on the "Effect of Ionizing Radiation on the Human Brain, and on Human and Experimental Brain Tumors."

* * *

Dr. Henry L. Bockus, professor and chairman of the Department of Medicine at the University of Pennsylvania Graduate School of Medicine, will be the first guest lecturer of the newly established Alice and Royall Brown lectureship on March 12 and 13. The lectures will be open to interested physicians.

* * *

Dr. Charles A. Janeway, Thomas Morgan Rotch Professor of Pediatrics at Harvard Medical School, will deliver the 1956 Nathalie Gray Bernard lectureship on March 27 and 28. His two lectures, "Physiology of the Plasma Proteins" and "Plasma Proteins and Immunity," will be presented in the evenings and will be open to interested physicians. He will also conduct ward rounds and student conferences, and will deliver the Alpha Omega Alpha installation address.

* * *

The Brayton Pharmaceutical Company of Chattanooga, Tennessee, is giving financial support for a study of the effects of antacids in long-term therapy of peptic ulcer. The study is being conducted by Dr. David Cayer, professor of gastroenterology.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

The world's first "growing patch" skin graft experiments will be conducted by Duke University Medical School's Department of Plastic Surgery under a Playtex Park Research Institute grant, it was announced recently.

The experiments will be aimed at saving thousands of lives now lost every year as a result of burns, Dr. W. C. Davison, dean of Duke Medical School, and Dr. Charles F. McKhann, professor of pediatrics at Jefferson Medical College and chairman of the Institute's board of governors, stated in a joint announcement.

The initial Duke grant from the Institute, a non-

profit foundation for support of pediatric research, will be \$6,495 for the first year.

The technique to be tested by Dr. Nicholas Georgiade, assistant professor of plastic surgery, will involve the growth of the skin of a burned patient in the laboratory by Dr. Duncan Hetherington, professor of histology, for later use as a permanent graft. Laboratory experiments have shown that skin, in a special growth media, may be multiplied 10 times its original size in a period of two weeks.

The Duke experiment marks the first recorded attempt to reproduce the patient's whole skin—both outer layer (epidermis) and true skin (derma)—in the laboratory for graft later.

* * *

If you're getting on in years, having a hobby is more than a "bright idea," it's sound medical advice. Dr. Ewald W. Busse, chief psychiatrist at Duke University, emphasized this point at a special symposium on aging held in Cincinnati, on January 13.

"Our studies indicate that individuals who continue to pursue a gainful occupation even though they are past the usual age of retirement and others who occupy their time with planned activity have relatively few depressive moods. They are strikingly different from people who have had to be hospitalized because they were unable to adjust in the community," he said.

"The people requiring hospitalization were almost devoid of any interests which could satisfy their needs as a well selected hobby can do," he emphasized.

"For this reason, I believe the physician is responsible for making sure his patients who are approaching retirement or are on the threshold of old age provide themselves sources of entertainment and emotional rewards by developing planned creative and recreational activity," he said.

NORTH CAROLINA ALCOHOLIC REHABILITATION PROGRAM

The Psychiatry Department of the School of Medicine and Memorial Hospital, Chapel Hill, has opened special beds for the treatment of alcoholism. White, male and female alcoholic patients have first priority on these beds. Arrangements for admission must always be completed in advance by calling or writing the Admitting Resident, Department of Psychiatry, Memorial Hospital, Chapel Hill, telephone 9031, extension 270.

Alcoholic patients are required to enter the hospital voluntarily for a minimum period of ten days and they must sign an agreement to this effect at the time of admission or before. The cost of such hospitalization is at the same rates as for other departments within the hospital. The costs (payable in advance) for the ten-day period are as follows:

Full rate: \$230 plus professional charges of \$135. In certain situations the physician may

reduce his professional fee following admission. Partial rate: \$175—for patients realistically unable to pay full costs and professional fees.

The hospital's financial situation makes it necessary to admit more than 50 per cent of the patients as full rate patients, and doctors are requested not to promise any specific rate to a prospective patient as the actual rate will be fixed at the hospital.

This new facility should obviously not be recommended to patients who would have difficulty in meeting the financial obligations. The Alcoholic Rehabilitation Center at Butner is more suitable for such patients, as the cost is only \$75 for 28 days.

Normally, the patient's physician will refer the patient, but either the doctor, the patient, or his relatives may contact the admitting resident concerning the possible admission.

As Memorial Hospital is the teaching hospital for the medical school, it will be impossible for this alcoholic unit to serve as a "drying out center" for repeated admissions of alcoholic patients who have as yet no real intention of seeking sobriety. The approach will primarily be one of rehabilitation through psychotherapy.

NORTH CAROLINA HEART ASSOCIATION, INC.

A heart symposium will be held on Wednesday, February 22, from 3:30 to 5:30 P.M. at the New Ricks Hotel in Rocky Mount.

Speakers will be Dr. Ernest Craig, University of North Carolina School of Medicine—"Prevention of Coronary Artery Disease"; Dr. Eugene A. Stead, Jr., Duke University School of Medicine—"New Concepts in Treatment of Hypertension"; and Dr. Paul Dudley White, Harvard School of Medicine—"Coronary Thrombosis . . . and Back to Work."

All North Carolina physicians are cordially invited.

EDGECOMBE-NASH MEDICAL SOCIETY

Dr. John Frierson conducted a discussion of "Radiation Therapy in the Treatment of Inoperable Cancer" at the meeting of the Edgecombe-Nash Medical Society held in Rocky Mount on January 11.

New officers of the society are: Drs. Sam Way, president; J. C. Brantley, Jr., first vice president; R. D. Kornegay, second vice president; J. S. Brock, secretary-treasurer; and R. M. Whitley, editor of the Bulletin.

FORSYTH COUNTY MEDICAL SOCIETY

The January meeting of the Forsyth County Medical Society was held in Winston-Salem on January 10. Dr. Manson Meads of the Department of Preventive Medicine, Bowman Gray School of Medicine of Wake Forest College, spoke on "Medicine in Thailand."

NEWS NOTES

Two North Carolina physicians have been elected Fellows in the American College of Radiology, according to an announcement from the College headquarters in Chicago. They are Dr. John O. Lafferty of Charlotte and Dr. Ernest H. Wood of Chapel Hill.

Investiture into Fellowship was made Friday, February 10, at the Drake Hotel in Chicago as a high light of the annual meeting of the college, and the Conference of Teachers of Clinical Radiology.

Election to Fellowship is an honor bestowed by the College of Radiology in recognition of outstanding achievement and contribution to the art and science of medicine in general and radiology in particular.

AMERICAN COLLEGE OF GASTROENTEROLOGY

A regional meeting of the Southern Region of the American College of Gastroenterology will be held in New Orleans, Louisiana, on Sunday, April 8, 1956. The Scientific Sessions will be held in the auditorium of the Louisiana State University School of Medicine, commencing at 2:00 P.M.

At 8:00 P.M., the first Abraham L. Levin Memorial Lecture will be given by Dr. Asher Winkelstein, assistant clinical professor of medicine, Columbia University, College of Physicians and Surgeons, who will speak on "Recent Advances in Ulcerative Diseases of the Gastrointestinal Tract."

Dr. James T. Nix, of New Orleans, president of the American College of Gastroenterology, will preside. The program is under the chairmanship of Dr. Louis Ochs, Jr., chairman of the Board of Governors and governor of the American College of Gastroenterology for Louisiana. Dr. Ochs is being assisted by a committee which includes the governors of the College for the other states in the southern region, consisting of Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

Members of the medical profession are cordially invited to attend. A copy of the program may be obtained from the Secretary, American College of Gastroenterology, 33 West 60th Street, New York, 23, New York.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

It is now estimated that 70 million doses of Salk polio vaccine will be available by July 1, 1956.

On the basis of the improved supply situation the National Foundation for Infantile Paralysis is launching a public information program which bids for rapid vaccination of children against paralytic polio. This announcement was made recently in a letter sent to 200,00 physicians by Dr. Hart E. Van Riper, medical director of the National Foundation.

A 32-page booklet, entitled "New Information for Physicians on the Salk Poliomyelitis Vaccine: Number 2—January, 1956," edited by Dr. Van Riper, accompanied the letter. The booklet assembles recent scientific studies on the safety and effectiveness of the vaccine and answers the most commonly asked questions about the vaccine. A preprint from the *American Journal of Public Health* of the article, "Poliomyelitis Vaccine in the Fall of 1955" by Dr. Jonas E. Salk is also included in the mailing.

The dosage schedule for Salk vaccine recommended for 1956 is: two 1 cc. injections, intramuscularly, spaced four to six weeks apart with a third ("booster") injection of 1 cc. being given at least seven months later.

THIRD NATIONAL CANCER CONFERENCE

The American Cancer Society and the National Cancer Institute of the Public Health Service, Department of Health, Education and Welfare, will jointly sponsor the third National Cancer Conference in Detroit, Michigan, June 4, 5, and 6. More than a thousand research scientists and clinicians, including many from foreign countries, are expected to attend.

The opening session of the conference, in the Sheraton-Cadillac Hotel, will feature addresses by Dr. John R. Heller, director of the National Cancer Institute, and Dr. Charles S. Cameron, medical and scientific director of the American Cancer Society. Morning and afternoon sessions of the three-day meeting will begin with a general session at which a subject of broad interest will be presented by an outstanding speaker. The general sessions will then break into various symposiums to discuss cancer of different body sites, such as lung, gastrointestinal tract, and breast.

A Host Committee representing medical and health groups of the Detroit area, headed by Dr. Harry M. Nelson of the Southeastern Michigan Division, American Cancer Society, will arrange a public Cancer Forum for Tuesday evening, June 5, as a special feature of the Conference. Speakers for this program will include several participants in the scientific program of the Cancer Conference.

Copies of the conference program and advance registration cards may be obtained from the National Cancer Conferences Coordinator, American Cancer Society, 521 West 57 Street, New York 19, New York.

All physicians are invited to attend.

AMERICAN MEDICAL WRITERS' ASSOCIATION

The January issue of the *Mississippi Valley Medical Journal* (Quincy, Illinois) is the Annual American Medical Writers' Association number of the publication. It contains the papers read at the twelfth annual meeting of the Writers' Association

at St. Louis last September, including the presentations on non-medical writing given at the banquet, the talks given at the A.M.W.A. Workshop on Medical Writing, October 1, the winning essays in the 1955 Mississippi Valley Medical Society Essay Contest, and an index of the principal references to medical writing for the period 1948-1955. As in previous years, all the A.M.W.A. papers, plus the references on medical writing, have been incorporated into a booklet which is available for 25 cents, postpaid, from the A.M.W.A. Headquarters, W.C.U. Building, Quincy, Illinois.

AMERICAN HEARING SOCIETY

The American Hearing Society has announced that competition for the 1956 Kenfield Memorial Scholarship will open March 1. The award is made annually by the society to a prospective teacher of lipreading.

Application blanks may be obtained by writing to the society's national headquarters, 1800 H St., N.W., Washington 6, D. C. Deadline for returning completed applications is May 1. The scholarship winner will be selected by the Teachers Committee of the American Hearing Society, of which Miss Ruth Bartlett, Los Angeles, California, is chairman.

INTERNATIONAL ACADEMY OF PROCTOLOGY

The Eighth Annual Convention of the International Academy of Proctology will be held in the Drake Hotel, Chicago, April 23-26. A well rounded program covering major developments in proctology will be presented in papers, panel, symposium, and motion pictures.

Subject matter will include ulcerative colitis, carcinoma of the rectum and colon, hemorrhoids, ano-rectal strictures, pilonidal cysts, surgical complications of ano-rectal surgery, polyps, amebiasis, diverticulitis, fluids and electrolytes in gastrointestinal surgery, anesthesia, and many other related subjects.

AMERICAN ASSOCIATION OF BLOOD BANKS

The site of the ninth annual meeting of the American Association of Blood Banks previously scheduled for Cincinnati, Ohio, November 4-7, 1956, has been changed. The meeting will be held September 3, 4, 5, 1956, at the Somerset Hotel in Boston, Massachusetts. Inquiries should be directed to Miss Marjorie Saunders, Secretary, 725 Doctors Building, 3707 Gaston Avenue, Dallas, Texas.

U. S. DEPARTMENT OF HEALTH AND WELFARE

An expanded program of research in allergy and infectious diseases was announced today by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service.

This program will be administered by the National Microbiological Institute, which is being redesignated as the National Institute of Allergy and

Infectious Diseases, Dr. Scheele said. The Institute will also support long-term basic studies in these fields through grants to research scientists in the Nation's universities and medical schools. An increase of \$3,200,000 will be sought for this program for fiscal year 1957.

"The renaming of the Institute," the Surgeon General said, "reflects the importance of the new research program on allergies and the close relationship of such research with the study of infectious diseases. Investigations of allergy are closely allied to the science of immunology, which is also fundamental to investigation of the infectious and parasitic diseases."

* * *

Four Russian medical scientists arrived in the United States last month for a four weeks' visit to study methods of treatment of poliomyelitis and the preparation of the Salk vaccine, the Public Health Service, Department of Health, Education and Welfare, announced today.

The Soviet scientists went to seven American cities, including Pittsburgh, where they visited the Municipal Hospital and met with Dr. Jonas Salk, developer of the poliomyelitis vaccine.

In addition to Washington, D. C., other stops on the schedule included Children's Hospital in Boston, Massachusetts; the Yale University Medical School in New Haven, Connecticut; the University of Minnesota Medical School, in Minneapolis; Children's Hospital Research Foundation, in Cincinnati, Ohio; Johns Hopkins University, in Baltimore, Maryland, and the National Institutes of Health, of the Public Health Service, in Bethesda, Maryland.

The Russian scientists were accompanied on their tour by Dr. Alexis I. Shelokov, virologist of the Public Health Service's National Institutes of Health.

Arrangements for the tour were made by the Public Health Service at the request of the Department of State.

RESEARCH COUNCIL FOR ECONOMIC SECURITY

Absenteeism among employed persons is a subject of considerable concern to industry, according to the most recent publication of the Research Council for Economic Security, Chicago. Illness absences alone, by the most conservative estimates, cause the loss of the services and production of one million workers every year, valued at approximately \$5 billion. If all data were available, the loss from absenteeism might be found to be as much as \$10 billion.

The Research Council book, entitled *Absenteeism*, contains a summary of the discussions at a seminar and workshop on absenteeism conducted by the Council last year. It also includes selections from the exhibits that were used at the seminar and additional specially adapted source material.

The seminar was an outgrowth of the Research

Council's Study of Prolonged Illness-Absenteeism, which is being completed this year. Preliminary reports from the study have been used by many of the participating establishments as a basis for evaluating their absenteeism problem, revising control records, instituting new procedures, developing medical care programs, and revising employee benefit plans. The conference was planned so that these experiences, and the techniques and tools that had been developed, could be pooled and reviewed.

TOBACCO INDUSTRY RESEARCH COMMITTEE

A third allocation of \$500,000 to continue support of research by independent scientists into all phases of tobacco use and health has been announced by Timothy V. Hartnett, chairman of the Tobacco Industry Research Committee. The increase brings the tobacco group's research fund allocations to \$1,500,000.

UNITED STATES AIR FORCE

The Office of The Surgeon General, USAF, announced that all physicians and dentists now serving on active duty in the grade of First Lieutenant have been promoted to the temporary grade of Captain effective February 1, if they have acquired 12 months of professional experience subsequent to graduation from medical or dental school and are otherwise qualified. All medical and dental officers now serving on active duty in the grade of First Lieutenant will be promoted to the temporary grade of Captain when they attain the above eligibility requirements.

When physicians and dentists holding permanent reserve commissions as First Lieutenants in the Reserve of the Air Force are ordered to active duty after February 1, 1956, they will be promoted to the temporary grade of Captain on the day they enter active duty if they have acquired 12 months' professional experience after graduation from medical or dental school and are otherwise qualified.

This is another action proposed by the Armed Forces Task Force Group appointed last June by the Secretary of Defense to explore the critical problems of attracting and retaining career medical and dental officers.

U. S. ATOMIC ENERGY COMMISSION

K. E. Fields, General Manager of the Atomic Energy Commission, today announced that the Commission's Isotopes Division has been placed under the Division of Civilian Application, and has been designated the Isotopes Extension at Oak Ridge, Tennessee.

The change was effective January 1, 1956. The Isotopes Extension will remain at Oak Ridge, and licenses for procurement of radioactive isotopes will continue to be issued from there to distributors and users. Dr. Paul C. Aebersold continues as director.

Award of 44 unclassified life science research contracts in the fields of biology, medicine, biophysics, and radiation instrumentation has been announced by the U. S. Atomic Energy Commission. The contracts were awarded to universities and private institutions as part of the AEC's continuing policy of assisting and fostering research and development in fields related to atomic energy as specified in the Atomic Energy Act of 1954.

The Month in Washington

Bills that have been hanging fire in Senate and House Committees for over a year finally are getting attention as the administration pushes its program for broader and more uniform medical care for the families of servicemen.

A new version of a bill was dropped in the hopper on the opening day of this session by Chairman Carl Vinson of the House Armed Services Committee. It was designed in part to supply answers to a number of questions growing out of earlier versions sponsored by the Defense Department. Actually it raised more questions, which only hearings and testimony from expert witnesses and debate on the floor of Congress can answer.

The bill (H.R. 7994) authorizes, as a matter of right, broad medical care for dependents of the armed forces as well as of Coast Guard, Public Health Service and Coast and Geodetic Survey personnel serving on active duty. (The bill would authorize health insurance only for dependents of latter three services.) Separate bills have been introduced in the past providing medical care for dependents of Coast Guard, PHS and Geodetic Survey, but this marks the first time they are brought into the same bill with military personnel.

In provision of services, the bill has no surprises over its predecessors. It calls for diagnosis, treatment of acute medical and surgical conditions, treatment of contagious diseases, and maternity and infant care.

On another point of major interest to physicians, the bill drops out all mention of the home-town medical care plan, which

was a part of Mr. Vinson's earlier bill. That bill contemplated use of civilian hospitals and doctors for those dependents who were not near military medical facilities and who had not taken out health insurance, with the government paying part of the cost.

Another area of almost certain debate in the latest bill is the insurance features. There are these main points:

1. A serviceman may elect to rely entirely on the chance of finding space available in a military hospital or clinic for his family, or he may choose protection through an insurance plan.

2. The family deciding on insurance has its choice of going to a military hospital or using civilian resources. The uninsured family could be charged by the military for outpatient care, and would have to pay subsistence costs while in the hospital.

3. A serviceman taking insurance would pay 30 per cent of monthly premiums for a basic plan covering his wife and children, and the entire premiums for coverage of dependent parents and parents-in-laws. Parents and parents-in-law who found space in a military hospital, however, would be admitted on the same basis as wives and children.

4. Catastrophic-type coverage is provided at additional premium.

5. To take care of long term illnesses, the bill provides for transfer of dependents to military facilities once they have used up benefits in an insurance plan. Or if such transfer isn't feasible, the government could pay the additional costs for private care.

The bill was introduced before the Defense Department had completed a survey of Blue Shield, Blue Cross, and commercial plans to determine to what extent they could provide care under the bill. Conceivably the survey could further change the shape of an already much-revised piece of legislation.

President Eisenhower in his State of the Union message summed up the case for dependent medical care this way: "Much has been done to attract and hold capable military personnel, but more needs to be done." He also broadly outlined administration plans in the health field, with emphasis on more money for research and federal aid to medical schools and to private research fa-

cilities for construction. With bipartisan bills along this line already before Congress, these proposals may move right along before adjournment in midsummer.

However, Congress might decide that for this year medical schools should settle for \$90 million of Ford Foundation money being made available to private schools to help strengthen teaching staffs.

By the same token, there was some question just how much Congress would vote for Hill-Burton hospital programs this session in the light of the \$200 million Ford grants to some 3,500 non-profit hospitals.

A recent Public Health Service report indicates that states are now showing less preference for "public" Salk vaccine programs than they did a few months ago. The sixth allotment marked the high-point in "public" preference. Then came a slight but steady decline.

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In Memoriam

James W. Berry, M.D.

A feeling of unusual sadness was felt at the meeting of the Mitchell and Yancey Medical-Dental Society held on December 14, 1955. The atmosphere of regret was caused by the recent death of Dr. James W. Berry of Bakersville. Several members of this Society expressed with great feeling their sorrow at the passing of a young man having such great promise for service. Upon motion made, seconded and unanimously carried the following Resolution was passed:

RESOLUTION

WHEREAS, Dr. James W. Berry, late a member of the Mitchell and Yancey Medical-Dental Society has lately departed this life after such a very few years of valuable service to humanity; AND WHEREAS, the members of the Society feel that a man of Dr. Berry's ability, learning and wisdom held great promise:

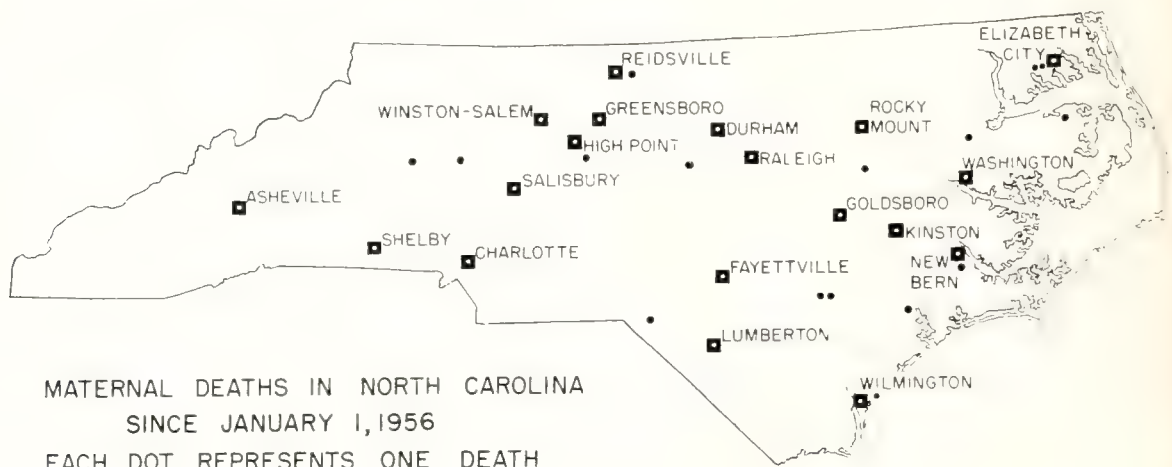
NOW, THEREFORE, BE IT RESOLVED:

1. That in the death of Dr. James W. Berry the medical profession has lost one of its most highly respected members;
2. That the death of Dr. James W. Berry means a great loss to humanity and creates a place that will be difficult to fill;
3. That expressions of sympathy be conveyed to the family of Dr. James W. Berry and a copy of this Resolution be transmitted to the family and a copy spread upon the minutes of this Medical-Dental Society.

This the 14th day of December, 1955.

MITCHELL AND YANCEY MEDICAL-DENTAL SOCIETY

By Walter Ost, M.D.
President



NORTH CAROLINA

Medical Journal



Vol. 17 No. 3
March, 1956

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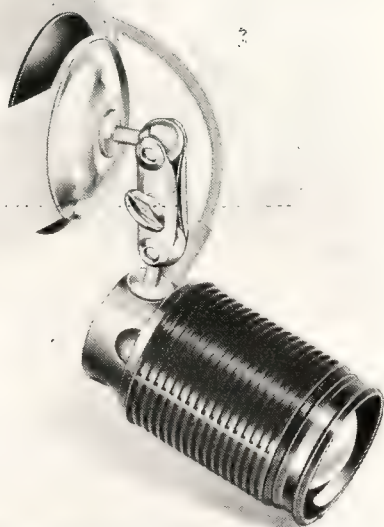
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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 17

MARCH, 1956

NUMBER 3

Blood Transfusion — Good, Bad, and Indifferent

ROBERT W. PRICHARD, M.D.*

WINSTON-SALEM

The use of blood and its derivatives has steadily increased in recent years. In 1950 a reliable estimate was that 3,000,000 pints of blood are given each year⁽¹⁾. It was also estimated that even in carefully operated institutions the mortality from blood transfusion ranges from one death per 1,000 to one death per 3,000 transfusions. This is roughly the same mortality as that of appendectomy or anesthesia, yet blood transfusion is approached much more casually than either of those procedures. Like many other medications, blood is tested and prepared for the patient with great care, but often scant thought is given to the indications for its use. This paper presents a systematic, but superficial, view of the use of blood. The many recent advances in cross-matching are not considered; there has been a recent excellent review of this matter⁽²⁾.

Blood is not a homogeneous red fluid; this platitude seems necessary, since it is often used as though it were. It is an organ whose interstitial tissue is fluid, allowing it to be dismembered and the individual components used for specific purposes in many instances. The formed elements are the red cells, white cells and platelets, while the fluid portion consists of water, proteins, electrolytes, metabolites, and hormones. In considering the use of blood as a medicant, whole blood and each of its fractions may be considered individually.

Whole Blood

Whole blood should be primarily used to

Read before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 4, 1955.

From the Department of Pathology of the Bowman Gray School of Medicine of Wake Forest College and the Laboratories of the North Carolina Baptist Hospital.

*At present serving as adviser to United States Operations Mission to Thailand.

replace the active loss of whole blood. Thus it is used in the treatment of accidental blood loss and during extensive surgical procedures for the maintenance of blood volume. Unfortunately, whole blood is used in many instances where red cells alone are necessary. A possible indication is the use of whole blood for the correction of anemia when there is complicating severe hypoproteinemia; this subject is discussed with that of plasma. Whole blood exerts considerable osmotic effect, in proportion to the amount of plasma included. For this reason, it is important to avoid overloading the circulation.

Plasma

Plasma is the cell-free fluid portion of blood, valued for its osmotic effect and for the many substances dissolved in it. It has been widely used as a stop-gap measure for restoring blood volume until such time as whole blood is available. The coagulation factors contained in plasma are in maximum concentration when the plasma is fresh—less than three hours out of the donor. In practice these concentrations are most readily approached by the use of freshly-frozen plasma, thawed immediately before use. Such plasma is more effective than fractions prepared chemically, and less expensive.

There has been much use of plasma as a source of whole protein for intravenous use, although the actual value of it has been little investigated. Each unit of plasma (the amount derived from one pint of blood) contains roughly 19 Gm. of protein, the same amount as three tablespoons of cottage cheese or three eggs. To supply 150 Gm. of protein per day, a modest amount,

would require the plasma from eight donors and the administration of close to 2,000 milliliters of fluid. This would not take into account the caloric needs of the patient, which would come out of that protein if not otherwise supplied and further reduce its effectiveness. The danger of circulatory overload is great with such a program. At the present time even fat emulsions given intravenously will not maintain positive nitrogen balance in the surgical patient under acute stress⁽³⁾. In view of the cost and relative inefficiency of plasma it would seem best to use amino acid and glucose solutions instead. Thus the main use of plasma would still seem confined to emergency situations where shock is a feature. The danger of serum hepatitis has been the main drawback in this regard, but evidence is accumulating which suggests that liquid plasma stored at room temperature at least six months before use is free of that virus.

Plasma fractions

Plasma fractions are used in several fields. Gamma globulin is well known as an agent for passive immunization, providing the antibodies which any donor pool inevitably has. It has recently been popular in regard to poliomyelitis, and has been routinely used for attenuation of measles.

Serum albumin has become available both commercially and through the Red Cross. It has been used for its osmotic effect in shock and for relief of hypoproteinemia. It can be pasteurized and does not transmit hepatitis. The indications and advantages in shock are the same as those of plasma. It comes in units containing 12.5 Gm. of albumin, which is osmotically equivalent to a unit of plasma. In hypoproteinemia large amounts must be given—from 50 to 100 Gm. per day for 10 to 14 days. In such instances proteinuria develops in many patients. Serum albumin is very expensive—about \$36 per unit—although this cost is not apparent when it is supplied by the Red Cross. At that rate, treatment of hypoproteinemia would cost from \$144 to \$288 per day. Here again the use of plasma and its fractions in nutrition hardly seems feasible.

Fibrinogen and antihemophilic globulin are both contained in fraction I of plasma, and are commercially available in dried

form. They may transmit the virus of serum hepatitis⁽⁴⁾. These preparations are no more effective than freshly frozen plasma. Adequate amounts of prothrombin are contained in both fresh and stored plasma. In many instances blood, plasma, and its fractions are administered to patients with little regard to the cause of bleeding. It should be remembered that such transfusions may actually add to the danger of bleeding, and in hemophilia may stimulate resistance to transfusion which will place the patient beyond help. Even hemophilic patients may be successfully treated for external bleeding by local measures. Pressure, cold, and the topical application of thrombin together with hemostatic substances such as Gel-foam are often effective. The proper management of such patients demands careful diagnosis and long-range planning⁽⁵⁾.

Red Cells

Red cells can be administered conveniently in the form of red cell suspensions, although whole blood is often unnecessarily given for such transfusions. Probably many doctors overlook red cell suspensions because they equate them with washed red cells, which are a considerable bother to prepare. Actually, red cells are most conveniently suspended in the small amount of plasma which remains when the supernatant is drawn off. This is easily done, using a gravity-settled bottle and performing the operation immediately before using the blood. The advantages are many. The danger of circulatory overload is reduced markedly in several ways. The red cells have little osmotic effect; the same number of red cells is contained in about half the volume of plasma; the amount of sodium given is more than halved. In addition, the time of transfusion is reduced, a factor which is much appreciated by the patient. The plasma thus removed is available for other use.

Even with the use of red cells, transfusion for anemia should aim at modest levels. To raise the hemoglobin level from 12 to 14 Gm. per 100 cc. requires about 4 units of red cells, a game hardly worth the candle. Most patients with such conditions as leukemia adjust perfectly well in the 9 to 10 Gm. level, and are maintained in that range with less trouble than at higher levels. Another abuse of transfusion is often

seen in the administration of a unit of blood to a patient who has lost perhaps 250 cc. of blood in the course of a surgical procedure or obstetric delivery. It is much less dangerous to allow an otherwise well patient to make his own 250 cc. replacement.

Platelets

Platelets have received considerable attention in the recent past, and have been successfully preserved and transfused on an experimental basis. At present, however, no method for giving platelet suspensions is generally available, and the indications are not yet clear, to say nothing of platelet-typing and other unsolved matters. The debate over whether freshly drawn blood is more beneficial than banked blood in the treatment of thrombocytopenia continues. Probably the best compromise available at present is to give such patients freshly drawn blood, preferably from a donor with polycythemia vera, collected in either a siliconized bottle or a plastic bag, both of which are generally available at little extra cost from suppliers of such equipment. It is a common observation that one rarely sees significant increases in platelet counts from the administration of such blood. One merely hopes for temporary control of the bleeding.

White cells cannot be given by transfusion at the present time. Various estimates have been made of how many pints of blood would be needed to yield a leukocyte suspension adequate to raise the white cell count from 3,000 to 5,000 cubic millimeters; all indicate that it is not achievable by present methods. The use of blood transfusion in leukopenia is futile.

Hazards and Future Outlook

The dangers of blood transfusion, previously referred to, are many and the legal responsibility is serious⁽⁶⁾. Many physicians who would never consider administering anesthesia without careful consideration order a transfusion with hardly a second thought. As Davidsohn has pointed out⁽⁴⁾, much mystical significance is attached to blood, and transfusions are given merely because the patient "looks weak" or might be "pepped up" or might "heal better" with a transfusion. Such "cosmetic" transfusions are to be whole-heartedly deplored as a travesty of therapy. The mat-

ter has been considered before⁽⁷⁾. Most fatal transfusion reactions are the result of clerical error, such as the misreading of labels, administration to the wrong patient, and so forth, but sober appreciation of such dangers and scrupulous, ever-vigilant attention to unglamorous details will reduce these to a minimum. In most laboratory determinations the physician's common sense will allow him to suspect laboratory error, but in blood transfusion he is at the technician's mercy.

The future of transfusion therapy is bright. The public has accepted blood donation as a part of modern life, and while the procurement of blood still presents many problems, tremendous advances have been made. New apparatus promises to separate blood rapidly, even as it flows from the donor's vein. Methods for typing, storing, and administering platelets are under investigation. New techniques for preserving red cells longer and in better condition are becoming known. These will serve as temptations which should be succumbed to only after serious consideration of the hazards involved and the desired end.

Summary

The widespread use and considerable danger of blood transfusion have been pointed out, and a plea has been made to consider the various elements of blood individually. Whole blood and its various fractions are discussed, noting what forms are available and the indications for their use. Brief mention is made of some common folklore concerning such things as the use of plasma in nutrition and supplying leukocytes by transfusion.

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Further Observations on the Use of Adrenosem Salicylate in the Control of Hemorrhage from the Nose and Throat

J. C. PEELE, M.D., M. Sc. (Med.)

KINSTON

A preliminary report of the use of Adrenosem salicylate in controlling hemorrhage of the nose and throat was made in 1955⁽¹⁾.

The purpose of the present paper is to record continuous observations and more definitive conclusions regarding the use of this drug.

Much of the preliminary investigation which established the hemostatic action of Adrenosem salicylate was done by Derouaux, Roskam, and their associates at the University of Liege in Belgium⁽²⁾. Sherber⁽³⁾, in this country, published a clinical paper on his use of this drug in the control of hemorrhage in patients with diseases associated with anatomic or physiologic defects of the vascular system and in surgical cases. A few cases of epistaxis and postoperative tonsillar and adenoidal hemorrhage were included.

Owings⁽⁴⁾ most recently reported on the preoperative use of Adrenosem salicylate for the prevention of primary postoperative adenoidal bleeding in selected cases of tonsillectomy and adenoidectomy. In his experience, only 4 cases of primary postoperative adenoid bleeding developed in 102 tonsil and adenoid operations performed on nonallergic patients when Adrenosem salicylate was given before the operation. The incidence of primary adenoid hemorrhage prior to the use of this drug has been about 10 per cent in his experience. He also thought that bleeding at operation had been diminished by its preoperative use.

The properties of Adrenosem salicylate were set forth in my previous publication from information supplied by the manufacturers* and from the publication of Sherber⁽³⁾. The consulting physicians and

I have used this drug concomitantly with a variety of analgesics, sedatives, vasodilators, antibiotics, vitamins, hematemics, hormones, laxatives, and drugs acting on the central nervous system, without any evidence of neutralizing effect. It may be given with blood coagulants.

Adrenosem salicylate may be administered orally in the form of tablets or syrup or intramuscularly. Because of its hypertonic character it cannot be given intravenously.

Control of Selected Cases of Epistaxis

From February 1, 1948, through March 31, 1955, 8,567 new patients were seen in a predominantly private office practice. Excluding traumatic cases, 449 of these patients had nosebleed, an incidence of 5.2 per cent. A statistical analysis of these cases is recorded in table 1. Of this total of 449 patients with epistaxis, there were 302 patients with 329 active bleeding points in the nasal cavity. Table 2 records the location of these points and table 3 the methods of treatment.

Since September 1, 1954, Adrenosem salicylate therapy in the treatment of patients with bleeding points in the nasal cavity inaccessible for cautery has been continued. In general, the initial plan of 1 cc. of the drug (5 mg.) given in the gluteal muscles every hour for the first 24 hours has been maintained. The tendency, however, has been to decrease the number of injections after the first 24 hours as quickly as feasible. The rapidity with which this can be accomplished depends on the tempo of bleeding in any given case.

Prevention and Control of Postoperative Hemorrhage

The preoperative administration of Adrenosem salicylate consisted of 1 cc. of solution injected into the gluteal region one hour before operation. In cases of submucous resection of the nasal septum, an

Read before the Section on Ophthalmology and Otolaryngology, Medical Society of the State of North Carolina, Pinehurst, May 3, 1955.

From the Kinston Clinic, Kinston, North Carolina.

*The S. E. Massengill Company, Bristol, Tennessee.

Table 1

Statistical Analysis of 449 Patients with Epistaxis (1948-1955)

Patients	
Sex	
Male	263
Female	186
Total	449
Bleeding	
Active	302
Inactive	141
Not stated	6
Total	449

additional injection was given immediately after operation and another one hour before removal of the nasal packs the following day. The brief discomfort attending the injection has not been a significant problem as originally anticipated. In the active treatment of all types of postoperative hemorrhage the dosage has been 1 cc. (5 mg.) injected at hourly intervals.

The same technique for tonsillectomy and adenoidectomy has been employed throughout the entire period of study. The technique of removing adenoids under direct vision has been used since early 1949 and is essentially that recently described by Reeves and Brill⁽⁵⁾. Prior to May 1, 1954, all patients for tonsil and adenoid operation were anesthetized with drop ether and ether insufflation. Since this time endotracheal anesthesia has been employed in all tonsil and adenoid operations. All nasal operations and all laryngo-broncho-esophagologic procedures have been done under local anesthesia.

The following patients were treated in Lenoir Memorial Hospital or in the office when hospitalization was not necessary. Usually only those with epistaxis from bleeding points that were inaccessible for office treatment were hospitalized. As a rule no coagulants were used in the treatment of any type of bleeding after hospitalization. One exception to each of these policies is discussed after the case reports. In these cases there was no reason to suspect an abnormal blood clotting mechanism. The serologic tests in all adults and older children were negative. In no instance was Adrenosem salicylate found to have a deleterious effect on the blood pressure. The following case reports of patients seen between September 1, 1954, and March 31, 1955 appear in abstract form.

Table 2

Location of 329 Active Bleeding Points in the Nasal Cavities

Site	Left	Right	R-L
Kiesselbach's area	97	88	25
Midseptum	15	8	0
Choana	9	5	1
Lateral wall			
Inferior meatus	14	19	0
Middle meatus	10	4	0
Inferior turbinate	1	1	0
Antrum	0	1	0
Septal perforation	2		
Not stated	2		
Not located	1		
Total	5	146	126

Table 3

Method of Treatment

Method	No. Bleeding Points
Hemo-Pak	115
Actual Current	92
Trichloroacetic acid	66
Postnasal pack	23
Adrenosem salicylate	23
Polypectomy	1
Anterior nasal pack (nasofrontal duct)	1
Not stated	4
Not treated	4
Total	329

Report of Cases

Medical

Epistaxis

Case 1: A 31 year old Negro man was first seen on October 13, 1954, because of bleeding from an inaccessible point on the left lateral nasal wall. He was hospitalized and the bleeding was controlled by a total of 26 injections of Adrenosem salicylate, followed by tablets given orally. The blood count was within normal limits.

Case 2: A Negro man, aged 39 years, was first seen on November 12, 1954, bleeding from the left choanal region of the nose. There was deviation of the nasal septum to the left, with obstruction. The patient was hospitalized and the bleeding was controlled by a total of 16 injections of Adrenosem salicylate, followed by tablets given orally. The general physical examination was reported to be normal by Dr. C. Wooten. The blood count revealed a mild secondary anemia. The coagulation time of the blood was 3 minutes and 35 seconds, and the bleeding time 1 minute and 50 seconds.

Case 3: A white man, aged 51 years, was first seen November 24, 1954, bleeding from the right choanal region. The nasal septum was deviated, causing obstruction to the right nostril. The patient was hospitalized and the bleeding controlled by 23 injections of Adrenosem salicylate. The patient was seen in consultation by Dr. C. Wooten, who felt that coronary artery disease was present. The blood count revealed a mild secondary anemia.

The coagulation time of the blood was 4½ minutes, and the bleeding time 1 minute.

Case 4: A 63 year old white man was first seen on February 12, 1951, with bleeding from Kiesselbach's area on the right, which was controlled by cauterization with the actual current. The patient was seen again December 29, 1954, with bleeding from an inaccessible point in the right nasal cavity between an exostosis in the floor of the nose and a large septal ridge. He was hospitalized and the bleeding was controlled by 22 injections of Adrenosem salicylate, followed by tablets given orally. The patient was examined by Dr. K. P. Turrentine, whose diagnosis was essential hypertension. The blood count was within normal limits. The coagulation time of the blood was 3 minutes and 30 seconds and the bleeding time 1 minute and 20 seconds.

Case 5: A white man, 67 years of age, was seen on February 2, 1955, because of bleeding from the right choanal region. The nasal septum was deviated to the right, causing marked obstruction. The patient was hospitalized and the bleeding controlled by 39 injections of Adrenosem salicylate followed by tablets given by mouth. The patient was examined by Dr. K. P. Turrentine, who made a diagnosis of arteriosclerosis. The blood count showed mild secondary anemia. The coagulation time of the blood was 4 minutes and 35 seconds, and the bleeding time was 2 minutes and 15 seconds.

Case 6: A 56 year old white woman, was seen March 12, 1955, with bleeding from an inaccessible point on the left lateral nasal wall. Two days previously the patient had bled from the left nostril, and was hospitalized by the referring physician. Two injections of Adrenosem salicylate given at 30 minute intervals were followed by cessation of bleeding. The patient refused further injections and was discharged from the hospital the following day. The bleeding recurred on the morning of March 12. The patient was hospitalized again, and the bleeding was controlled by 28 injections of Adrenosem salicylate. The blood count showed mild secondary anemia. The coagulation time of the blood was 2 minutes and 45 seconds and the bleeding time 1 minute and 10 seconds.

In addition to the above cases, 2 patients, each with an inaccessible bleeding point in the nasal cavity, were treated in the office with injections of Adrenosem salicylate given at hourly intervals, followed by tablets given by mouth. A third patient was hospitalized by Dr. O. W. Cranz in my absence, and profuse bleeding from the left Kiesselbach's area was controlled by six injections of Adrenosem salicylate given at 30 minute intervals. A fourth patient, addicted to alcohol, was hospitalized by Dr. L. E. Williams, and profuse bleeding from the left

choanal region was controlled by 28 injections of Adrenosem salicylate and vitamin K.

Surgical Cases:

Postoperative Tonsil and Adenoid Hemorrhage

Primary adenoid hemorrhage

Case 7: A 17 year old white girl had an uneventful tonsillectomy and adenoidectomy which terminated at 8:12 A.M. on September 2, 1954. Bleeding from the adenoid region developed at 1:15 P.M. Adrenosem salicylate therapy failed to control this bleeding, and a postnasal pack was inserted and allowed to remain 24 hours. A blood count made September 1 showed a mild secondary anemia and mild leukocytosis. The coagulation time was 3 minutes and 25 seconds, and the bleeding time 2 minutes and 10 seconds. A repeat study made September 4 showed no essential change.

Case 8: The patient, an 18 year old white youth, had an uneventful tonsillectomy and adenoidectomy which ended at 9:06 A.M. January 7, 1955. At 2:00 P.M. bleeding from the adenoid region developed. Failure to control it with Adrenosem salicylate therapy was followed by insertion of a postnasal pack which was allowed to remain for 24 hours. A blood count made January 6 was found to be within normal limits. The coagulation time was 3 minutes and 15 seconds, and the bleeding time 1 minute and 25 seconds. A repeat blood count made January 10 revealed a slight secondary anemia.

Case 9: A Negro woman, aged 29 years, had an uneventful tonsillectomy and adenoidectomy which ended at 9:03 A.M. January 12, 1955. Primary adenoid bleeding developed at 1:45 P.M., and was controlled by six injections of Adrenosem salicylate given at hourly intervals. A blood count made the preceeding day showed slight secondary anemia. The coagulation time of the blood was 2 minutes and 50 seconds and the bleeding time 1 minute and 30 seconds.

Case 10: A 6 year old white boy had an uneventful tonsillectomy and adenoidectomy which ended at 8:45 A.M. March 25, 1955. At 10:30 A.M. adenoid bleeding developed and was controlled by four injections of Adrenosem salicylate. A blood count made March 24 showed mild secondary anemia and moderate leukocytosis. The coagulation time of the blood was 2 minutes and 50 seconds, and the bleeding time was 2 minutes.

Secondary adenoid hemorrhage

Case 11: A white girl aged 6 years, had an uneventful tonsillectomy and adenoidectomy December 6, 1954. Six days later secondary adenoid bleeding developed, necessitating hospitalization. The hemorrhage was controlled by five injections of Adrenosem salicylate. The blood count made on

Table 4⁽¹⁾

Tonsillectomies and Adenoidectomies Performed
From January 1, 1952 Through November 19, 1953
Without the Preoperative Use of Adrenosem Salicylate

Type of Opr.	No. Patients	Total Opr. Time (Minutes)	Average Opr. Time (Minutes)
Primary			
Children	240	4,516	18.81
Adults	57	1,419	24.89
Secondary			
Children	12	215	17.91
Adults	4	107	26.75
Total	313	6,257	Average 19.99
Combined	10 *	(Time for each not stated)	
Time not stated	13		
Records lost	5		

Grand Total 341

*Time was not recorded for combined operations.

Total number of patients requiring suture of tonsillar fossae at operation for control of hemorrhage: 28

December 12 showed mild secondary anemia. The coagulation time of the blood was 3 minutes and the bleeding time 2 minutes. A repeat study made December 15, showed no essential change.

Case 12: A white woman, 36 years of age, had an uneventful tonsillectomy and adenoidectomy January 7, 1955. On January 13 secondary adenoid bleeding necessitated hospitalization. The bleeding was controlled by seven injections of Adrenosem salicylate. A blood count made January 6 revealed slight secondary anemia and moderate leukocytosis. The coagulation time of the blood was 3 minutes and 20 seconds, and the bleeding time was 1 minute and 40 seconds. A repeat study made January 14 gave approximately the same results.

Case 13: A 7 year old white girl had an uneventful tonsillectomy and adenoidectomy February 23, 1955. Three days later adenoid bleeding developed. The patient was hospitalized and the bleeding was controlled by a total of 11 injections of Adrenosem salicylate. A blood count made February 2 revealed mild secondary anemia and slight leukocytosis. The coagulation time of the blood was 3 minutes and the bleeding time 1 minute and 30 seconds. A repeat study done February 26 showed some increase in the secondary anemia.

Comment

The effectiveness of Adrenosem salicylate in the treatment of patients bleeding from inaccessible points in the nasal cavity seems to be well established. Hospitalization is usually necessary for the treatment of this type of case. In the office a preliminary injection 30 minutes before cauterization with the actual current of an accessible bleeding point on the nasal septum diminishes the bleeding and thus facilitates cauterization.

Table 5

Tonsillectomies and Adenoidectomies Performed
From November 20, 1953 Through March 31, 1955 With the Preoperative Use of Adrenosem Salicylate

Type of Opr.	No. Patients	Total Opr. Time (Minutes)	Average Opr. Time (Minutes)
Primary			
Children	260	4,172	16.04
Adults	44	870	19.76
Secondary			
Children	7	118	16.85
Adults	8	162	20.25
Total	319	5,322	Average 16.68
Combined	0		
Time not stated	0		
Records lost	2		
Excluded	2		

Grand Total 323

Total number of patients requiring suture of the tonsillar fossae at operation for control of bleeding: 7

Tangible data assembled in this study may be cited to support the observations that the preoperative use of Adrenosem salicylate has decreased the bleeding attending the removal of tonsils and adenoids at the time of operation and the oozing in the immediate postoperative period.

From January 1, 1952, through November 19, 1953, a total of 341 primary and secondary tonsillectomies and adenoidectomies were performed on both children and adults without the preoperative use of Adrenosem salicylate (table 4). The average operating time for 313 of these operations was found to be 20 minutes. The average operating time for 313 of these operations performed from November 20, 1953, through March 31, 1955, on similar patients who had received Adrenosem salicylate was found to be 16.7 minutes (table 5). This represents an average reduction in operating time of 3.3 minutes.

The records of 336 primary and secondary tonsillectomies and adenoidectomies performed on children and adults from January 1, 1952, through November 19, 1953, before the preoperative use of Adrenosem salicylate, were reviewed to determine the number of patients requiring suture of the tonsillar fossae to control bleeding at the time of operation. It was found that 28 out of 336 patients required sutures (8.3 per cent) (table 4). Of 319 similar patients who received preoperative Adrenosem salicylate, 7 patients required sutures of the tonsillar fossae to control bleeding during

the operation (incidence 2.19 per cent) (table 5). This represents a significant reduction in the number of sutures necessary to control bleeding from the tonsillar fossae at the time of operation.

There has been no significant difference in the incidence of primary postoperative hemorrhage in the group of patients which did and the group which did not receive preoperative Adrenosem salicylate. These results are based on a single injection of the drug given one hour before operation. A second injection of the drug after operation will be started soon to determine if two injections will reduce the incidence of primary postoperative hemorrhage.

Since the first use of Adrenosem salicylate to control postoperative hemorrhage November 19, 1953, 6 cases each of primary and secondary adenoid bleeding and 2 cases of primary tonsil bleeding have been treated with this drug. In 4 cases of primary postoperative adenoid hemorrhage, 2 cases of primary postoperative tonsillar hemorrhage, and 6 cases of secondary adenoid bleeding, Adrenosem salicylate was successful in bringing the hemorrhage under control. In 2 cases of primary postoperative adenoid bleeding the drug was unsuccessful, and postnasal packs were inserted.

With one exception no definite trends regarding the use of this drug in laryngo-broncho-esophagologic procedures can be established. It is my impression, based on 10 cases of benign laryngeal growths, that the preoperative use of Adrenosem salicylate reduces the bleeding and improves visualization and inspection of the pathologic area after removal of this type of growth.

Conclusion

The data assembled in this study warrant the following conclusions. The routine preoperative use of Adrenosem salicylate in tonsil and adenoid surgery diminishes the bleeding at the time of operation and the oozing in the immediate postoperative period. As a result of the reduced bleeding at operation fewer patients required sutures of the tonsillar fossae for control of bleeding. The incidence of primary postoperative

tonsil and adenoid bleeding is not reduced by a single preoperative injection of Adrenosem salicylate. This drug is valuable in the active treatment of postoperative tonsil and adenoid bleeding and reduces the incidence of postnasal packing or sutures.

In cases of submucous resection of the nasal septum, the use of Adrenosem salicylate reduces the bleeding at the time of operation, in the postoperative period, and following removal of the nasal packing.

Preoperative Adrenosem salicylate reduces the bleeding following removal of benign inflammatory growths from the vocal cords and subglottic larynx, and the operative field is thereby better visualized to determine completeness of removal.

In cases of bleeding from points in the nasal cavity inaccessible for office treatment because of anatomic deformity or in such pathologic conditions as hypertension, arteriosclerosis, or respiratory infections, the use of this drug virtually obviates the use of postnasal packing.

The dosage used in the treatment of patients whose case histories have been recorded in this paper represents the average amount of drug necessary to obtain desirable therapeutic results.

Adrenosem salicylate does not produce undesirable side effects when used in the amount and at the intervals employed in this group of cases.

The author is indebted to the Administrator of Lenoir Memorial Hospital for making Adrenosem salicylate available for the treatment of ward cases.

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Tuberculous Meningitis in Children: A Preventable Illness

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Until recently, tuberculous infection has taken a heavy toll in the first few years of life. Although the prognosis of primary tuberculous infection in general is favorable, we have to realize that all children who die from any form of tuberculosis had initially a simple primary infection, probably with no clinical symptoms. The improved management and treatment of tuberculous infection has decreased the death rate in primary tuberculosis to the point that in the last three years no deaths have occurred among the 120 admissions to the Children's Unit at the North Carolina Sanatorium, McCain, unless the patient already had tuberculous meningitis at the time of admission.

The results of treatment of tuberculous meningitis itself have improved greatly, but death still sometimes occurs and in other cases the baneful after-effects of the disease may be crippling and permanent. An intensive effort should be made, therefore, utilizing all possible means, to prevent tuberculous meningitis. When it has developed, the diagnosis should be made at the earliest possible moment so that therapy may have the best chance of success. To this end, the possibility of the disease must be kept constantly in mind and its protean clinical manifestations understood. Unfortunately, characteristic cerebrospinal fluid findings are sometimes overlooked to the detriment of the patient.

The Present Study

The purpose of this paper is to present certain aspects (mainly those related to the

mode of contact and clinical histories) of the disease as it was presented in the 15 children (2 white and 13 Negro) who were admitted with a diagnosis of tuberculous meningitis to the Children's Department of this Sanatorium during 1953 and 1954. In these patients the diagnosis was made prior to or at the time of admission. None of the children had incurred this complication of primary tuberculous infection while in the hospital or under treatment with Isoniazid.

The patients varied in age from 5 months to 10 years, 11 being under 3 years of age. Three cases occurred between the ages of 5 and 12 months, 2 between 12 and 24 months, and 6 between 2 and 3 years. One case occurred at 6 years, 1 at 7 years, 1 at 8 years, and 1 at 10 years. It is stressed that the possibility of tuberculous meningitis is greatest when there is a history of contact with pulmonary tuberculosis or a known primary pulmonary tuberculous infection, or a positive tuberculin test in a child under 3 years of age.

In 9 of the 15 children the first symptoms were those of meningitis. In 3 of these 9 patients the diagnosis of tuberculous meningitis was followed by the discovery of previously unsuspected cases of active tuberculosis among their immediate contacts. Active cases of tuberculosis were known to be present, however, among the contacts of the other 6 children. "Contact examination" of these 6 children had either been omitted or had been perfunctorily or irregularly performed. Had tuberculin skin tests been performed when a history of "contact" was known, some tuberculin-negative children

might have been discovered and removed from contact with the source of infection or given BCG vaccination. Those demonstrating conversion of the skin test to positive on repeated testing and those who were positive at the first examination could have received Isoniazid therapy and tuberculous meningitis might have been prevented.

The remaining 6 children presented their own doctors with a variety of signs and symptoms, not necessarily related to meningitis, quite some time before a correct diagnosis was made. These cases are reviewed in more detail.

Report of Cases

Case 1

A 7 year old Negro girl for three months had complained of abdominal pain and swelling associated with irregular fever. Although she consulted her own doctor, no diagnosis was made. At the end of three months she began to have convulsions, and was then transferred to this sanatorium. A tuberculin skin test performed early in the course of her illness could have provided the necessary clue to the diagnosis, and early therapy would have prevented tuberculous meningitis and the residual blindness from which the patient now suffers.

Case 2

A 10 year old Negro boy had complained of general malaise for six weeks prior to admission to this Sanatorium. One week before admission a diagnosis of primary pulmonary tuberculosis was made elsewhere. No reference was made at that time to any symptoms suggestive of meningitis. On admission to this sanatorium, however, the additional diagnosis of tuberculous meningitis was made, and cultures of the spinal fluid and of gastric washings later grew tubercle bacilli. Investigation later proved that an uncle and three children living in the same house had active pulmonary disease.

Case 3

A 3 year old Negro child had been a known contact of his tuberculous father, who had been treated for pulmonary tuberculosis three years before this child's birth

but had neglected or escaped regular supervision. The child had never been previously examined for tuberculosis until abdominal symptoms, associated with fever and meningismus, developed one month before admission. No diagnosis was made and no tuberculin skin test was performed, but the patient was treated empirically for three weeks with streptomycin and penicillin. One week prior to his admission, after a recurrence of the abdominal symptoms, a diagnosis of tuberculous peritonitis was made, and soon afterwards further symptoms of tuberculous meningitis became apparent. A roentgenogram of this child's chest showed a calcified primary lung lesion and calcified hilar glands, from which we may conclude that the onset of the tuberculous infection dated back several months at least, or perhaps even years. Under ideal circumstances the tuberculous meningitis in this case could easily have been prevented. Even had a correct diagnosis been made and adequate treatment instituted at the onset of symptoms one month prior to admission, death might well have been prevented.

Case 4

A 5 months old Negro child, manifested pulmonary symptoms for two months before admission. A persistent cough and some general malaise were noted. Even though it was known that his grandmother had advanced pulmonary tuberculosis and had refused sanatorium treatment, the possibility that the baby's symptoms could have been due to primary pulmonary tuberculosis was not considered and a tuberculin skin test was not performed. On admission here, after symptoms had persisted for two months, he was found to have active pulmonary disease and tuberculous meningitis. The resultant hemiparesis and mental retardation would not have occurred had the meningitis been prevented.

Case 5

The patient was a Negro boy, almost 3 years old, who one year prior to admission here had been admitted to another sanatorium with a diagnosis of miliary tuberculosis. At that time he was treated with streptomycin for five months but for financial reasons had been removed from the sanatorium against advice of the hospital

staff. Treatment was discontinued until one year later when a relapse of the miliary disease and the onset of tuberculous meningitis caused him to be admitted to this Sanatorium. Extensive residual brain damage remained even after intensive therapy. The dangers of inadequate treatment of miliary tuberculosis are obvious.

Case 6

For more than six months before his admission to this sanatorium, a 2½ year old Negro child had contact with his mother who was in an advanced stage of active pulmonary tuberculosis. He had been sick for only ten days before admission, and some effort had been made previously to separate him from the source case. On admission a diagnosis of miliary tuberculosis and tuberculous meningitis was made and later proven by the demonstration of tubercle bacilli. After initial improvement this child died unexpectedly, and unfortunately autopsy permission was refused.

Comment

It is probable that tuberculous meningitis could have been prevented in at least 11 of these 15 patients. This should have been possible by adequate "contact" control and "follow-up" in the 6 children (out of the first group of 9) who were known contacts of tubercular patients. The prophylactic use of Isoniazid may well have prevented the onset of tuberculous meningitis in those children in this group who had or came to have a positive tuberculin skin test. Then, in cases 1 through 5 described above, early diagnosis and adequate treatment of tuberculosis would probably have prevented the onset of meningitis.

Clinical and laboratory findings

The following signs of tuberculosis excluding those related to the meningeal localization, were found in these patients on admission. The tuberculin skin test was positive in every case. However, on admission the skin test with Old Tuberculin, 1:10,000, or with PPD first strength, was negative in 4 of the 15 cases. On retesting, a skin test with PPD second strength was positive in each of these 4 cases. While a tuberculin skin test may be negative in the early meningitis, it certainly does not remain negative, especially when the patient

is given effective treatment for meningitis.

Of the 15 patients, only 3 had normal chest roentgenograms. Two had calcified primary lesions, 4 had evidence of simple primary lesions, and 1 had a progressive primary pulmonary lesion. One patient had tuberculous consolidation of the left upper lobe, and 4 had miliary pulmonary involvement.

Seven of the 15 children were admitted directly to this hospital without having received any treatment for tuberculosis elsewhere. From gastric washings of 5 of the 7 patients, tubercle bacilli were grown.

As regards the meningitis, cultures of tubercle bacilli were also obtained from the spinal fluid in 5 of these 7 children who had received no treatment for tuberculosis before admission, 4 of these 5 having at the same time tubercle bacilli isolated from cultures of gastric washings. Tubercle bacilli were also cultured from the spinal fluid of 2 of the 8 children who were admitted after receiving initial treatment elsewhere. In the patients from whom no tubercle bacilli were isolated, the diagnosis of tuberculous meningitis was based on typical cerebrospinal fluid findings, concomitant pulmonary tuberculous lesions, positive tuberculin skin tests, and the clinical progress of the disease. The diagnosis was further confirmed in some cases by autopsy findings.

One child had had his spinal fluid examined elsewhere, and changes consistent with tuberculous meningitis had been found. Since the significance of these changes apparently did not impress the examiner and no diagnosis was made, it may be well to mention the usual findings in the spinal fluid in cases of tuberculous meningitis. The initial pressure is increased, and the number of cells per cubic millimeter is usually raised to between 10 and 500, mainly lymphocytes. An opalescent fibrin web may form when the fluid is allowed to stand. The protein content of the fluid is elevated (50 to 500 mg. per 100 cc.). The sugar content of the fluid (perhaps the most important chemical determination in cases of tuberculous meningitis) is lowered (0 to 45 mg. per 100 cc.) The amount of the chlorides is variable but is generally somewhat decreased.

Results

Although results have improved greatly since the introduction of specific antituberculous therapy, there is no room for complacency. Four of the 15 children in this group died. It must be noted, however, that 2 of these were transferred to this sanatorium in a moribund condition. They were decerebrate at the time of admission, and had received treatment elsewhere without success. One child (case 6) died about six weeks after admission following marked initial improvement. No postmortem examination was permitted. The fourth had received treatment elsewhere before being admitted here. After a relapse he died, showing evidence of cerebrospinal fluid block and hydrocephalus.

The remaining 11 children unfortunately are not all well. Five have crippling after-effects from this complication of primary tuberculous infection. One child has hemiparesis and is mentally retarded. Three children are blind, and although one of those is mentally alert, the other two have an extreme degree of brain damage. Only 6 have recovered completely and with no apparent disability. It is significant that best results were obtained in those patients in whom the diagnosis was made early and adequate treatment was started shortly after the onset of symptoms.

Treatment

It is not necessary at present to elaborate upon the clinical picture or the pathology of tuberculous meningitis. A few remarks about treatment may be in order, however.

The use of streptomycin in combination with Promizole or para-aminosalicylic acid brought the initial encouraging results. Emphasis was later placed on the necessity for repeated intrathecal injections of streptomycin, and British workers pointed out the advantage of intrathecal administration of PPD. This rather heroic measure has become less popular since the advent of Isoniazid, which is now felt to be probably the most valuable drug in the treatment of tuberculous meningitis. The addition of adrenal steroids or adrenocorticotrophic hormone to the scheme of treatment may have advantages, but no final conclusions have been drawn. It is felt, however, that good results have been obtained from the use of

these hormones, especially in progressive and far advanced stages of the disease.

At the present time our routine treatment of tuberculous meningitis consists of 8 to 10 mg. Isoniazid per kilogram of body weight given daily, either by mouth or intramuscularly. In addition, intramuscular injections of streptomycin in appropriate dosage, are given daily for two of three months, and then twice weekly. Para-aminosalicylic acid is given daily by mouth, if tolerated. We now add adrenal steroids, with apparently better results. By this means formation of exudate, and vascular reaction is diminished, and spinal block may be prevented. The effectiveness of the antituberculous therapy used may thereby be enhanced.

Summary and Conclusions

In reviewing the histories of 15 children who had tuberculous meningitis, we have emphasized that this complication of primary tuberculous infection could have been prevented in most cases. No simple primary lesion can be regarded as innocuous. The greatest danger of hematogenous dissemination occurs in the early years of childhood. Verhoeff and Peck⁽¹⁾ have therefore advocated treatment with Isoniazid of all positive tuberculin reactors under the age of 3, irrespective of the roentgen findings. It is believed that this would be an excellent prophylactic measure against tuberculous meningitis.

The more frequent use of a tuberculin skin test in doctor's offices and in hospital practice is desirable. With the possibility of tuberculosis and tuberculous meningitis in mind, a tuberculin skin test should be performed in any undiagnosed illness in childhood. Some cases of tuberculosis will then be discovered, and in those which show evidence of progressing to tuberculous meningitis, such a complication may be prevented by timely prophylactic therapy.

The disease may also be prevented by separating children with negative tuberculin skin tests from contact with open cases of pulmonary tuberculosis. Especially is this necessary during the first three years of life. Follow-up examinations and repeated tuberculin skin tests are necessary even after segregation. Only in this way will conversion of the tuberculin test to

positive be detected. Prophylactic Isoniazid therapy can then be instituted.

When the diagnosis of tuberculous meningitis is made, it is important that immediate treatment be instituted. Such treat-

ment should be given in a center with adequate facilities and an experienced staff.

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Primary Pulmonary Amebiasis

Report of A Case

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The increasing incidence and/or recognition of amebiasis is readily apparent from a perusal of the recent literature. Possibly, this fact is related to a generalized increase in travel, or more specifically to the widespread deployment of members of the Armed Forces throughout the world. With more cases of amebiasis being seen, unusual complications are to be expected. It is the purpose of this paper to report such a complication.

Case Report

A 46 year old man entered the Guilford County Sanatorium with the complaint that he had coughed up half a cupful of bright red blood the night before. He had not had any chills, fever, chest pain, loss of weight, known exposure to tuberculosis, anorexia, shortness of breath, or loss of time from his work. Since the winter of 1946-1947, which he had spent with the Armed Forces in France, he had had frequent acute episodes of bronchitis, during which he had noted streaks of blood in his sputum. On each occasion, however, he usually became asymptomatic after a few days on antibiotic therapy. Roentgenograms of the chest were not taken, except when he was discharged from the army in 1947; this film is presumed to have been negative. The system review was negative.

Physical examination revealed a well developed, well nourished man who was not acutely ill. Over the right upper anterior lung field dullness to percussion and diminished breath sounds were noted. No other abnormalities were found.

A chest film on admission showed consolidation of the upper lobe in the infra-clavicular area, with no cavitation (fig. 1). Acid-fast bacilli could not be demonstrated in the sputum, and the tuberculin test (1:100) was negative. A urinalysis and a complete blood count were within normal limits. A tentative diagnosis of unresolved pneumonia was made and treatment was begun with penicillin and streptomycin.

The lesion remain unchanged for 10 days, during which the patient had a low-grade fever. Without any known inciting incident he suddenly began to cough up large amounts of thick, foul sputum. At this time evacuation of the pulmonary lesion and a fluid level were demonstrated by x-ray (fig. 2). A diagnosis of lung abscess was made and bronchoscopy with bronchograms were performed but threw no light on the cause of the abscess. Penicillin and streptomycin were continued for another week (a total of two and one half weeks) without any change in the roentgen appearance of the lung or in the volume of sputum, which often amounted to more than 3 ounces per 24 hours. Sputum examination remained negative for acid-fast bacilli. Consequently, the patient was transferred to a general hospital for a right upper lobectomy.

Physical examination at the time of transfer disclosed no abnormalities except for dullness and occasional rales in the right upper anterior lung field. However, on laboratory examination he was found to have an eosinophilia of 9 per cent, with a total leukocyte count of 5,500. He denied any bowel abnormalities or gastrointesti-



Fig. 1. Initial chest roentgenogram, showing consolidation in the right infraclavicular area.

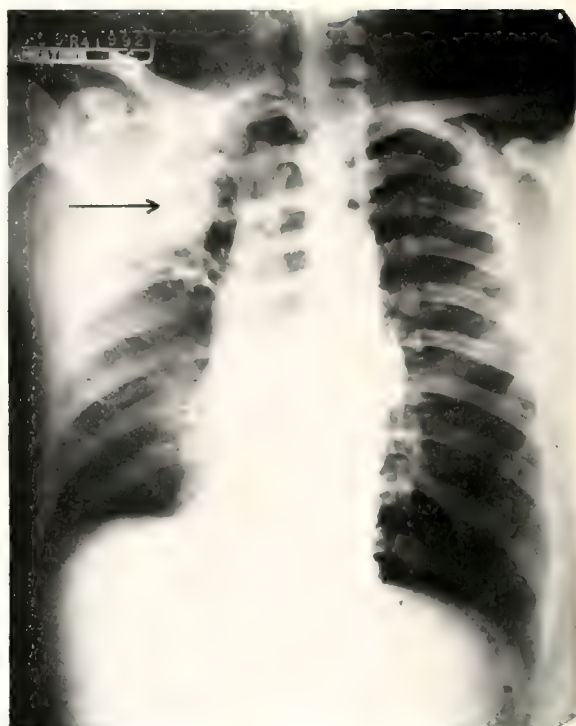


Fig. 2. Right oblique bronchogram, showing cavitation with fluid level.

nal symptoms. On stool examination *Endamoeba histolytica* cysts were identified. Hepatic function studies (bilirubin, cholestrol, total protein with albumin-globulin ratio, alkaline phosphatase, thymol turbidity, and cephalin flocculation) were normal. The possibility of an amebic abscess of the lung was seriously considered, even though multiple sputum examinations for ameba were negative.

It was decided to treat the patient with a course of emetine hydrochloride—60 mg. given daily for eight days. After the first dose, the production of sputum ceased almost instantaneously. He became afebrile within 24 hours. A chest film taken 10 days after the emetine therapy was begun showed the lung cavity to be smaller, although the fluid level was still present. At this physical examination was negative. Following a course of carbarsone therapy, the cysts were no longer identifiable in the stools. The patient was asymptomatic when discharged, and has remained so for eight months. A recent roentgenogram of his chest was interpreted as normal (fig. 3).



Fig. 3. Chest roentgenogram taken eight months after emetine therapy interpreted as normal.

Comment

Pulmonary amebic disease is almost invariably due to the rupture of a hepatic amebic abscess through the diaphragm. The amebas subsequently burrow into the lung, and not infrequently a bronchopleural fistula is formed, resulting in the expectoration of foul purulent sputum. In the rare occurrence of pulmonary disease without this sequence of events⁽¹⁾, it is possible that the amebas reach the lungs as emboli from foci of infestation in the liver⁽²⁾, or they may pass directly from the lower rectal veins to the inferior vena cava and subsequently out to the lungs⁽²⁾.

The identification of amebas in the sputum of patients with "embolic" lung involvement has not been reported at this writing. The diagnosis each time has been substantiated^(1,3), as in the present case, by the excellent immediate response to emetine. ("The Diagnosis in these cases was arrived at by a process of exclusion—and by observing the instantaneous and almost

miraculous effect of ecetine therapy"⁽¹⁾). It is interesting to note that amebas are found frequently in the sputum of patients with pulmonary abscess secondary to rupture of an hepatic abscess through the diaphragm. Why this difference should exist is problematical, but it may be due to the continual migration of amebas upward from the liver in the latter type case.

Summary

A case of "primary" pulmonary amebic abscess has been reported. The diagnosis was suspected following the identification of amebic cysts in the stools and verified by rapid sustained improvement on emetine therapy.

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An Analysis of Maternal Mortality Due To Anesthesia in North Carolina

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Total maternal deaths in North Carolina have been reduced from 284 in 1948 to 148 in 1954. Improvement can be seen in almost every etiologic classification (table 1). The most important factors in this decrease are improved prenatal care, increased availability of whole blood, more and better hospitals, chemotherapy, including the use of antibacterial compounds, and a greater interest in the entire problem of maternal mortality. A comprehensive discussion of these

factors has been presented in an earlier paper⁽¹⁾.

Although toxemia and hemorrhage remain the most frequent causes of maternal mortality, accounting for 58 per cent of obstetric deaths in 1954, significant progress has been made in the prevention and treatment of these conditions, so that emphasis is now expanding to etiologic factors which heretofore have been numerically less important and which still are poorly understood.

Anesthetic complications have been responsible for 3.0 per cent of obstetric maternal deaths in North Carolina during the past eight years. In other parts of the country this percentage has risen to almost 25

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Table 1
Maternal Deaths in North Carolina
1946-1955

Cause of Death	1946	1947	1948	1949	1950	1951	1952	1953	1954	TOTAL
Toxemia	20	64	80	49	50	54	59	66	41	483
Hemorrhage	18	66	78	38	56	50	39	36	34	415
Embolism	3	18	20	21	12	17	20	15	17	143
Infection	8	21	17	14	14	10	14	10	7	115
Cardiac	5	9	12	8	11	6	6	3	3	63
Anesthesia	6	11	3	2	4	5	2	5	7	45
Other	1	19	25	27	23	13	23	15	15	161
Indeterminate	1	8	10	16	6	16	4	7	3	71
Nonobstetric	3	19	39	28	26	33	33	35	21	237
TOTAL	65	235	284	203	202	204	200	192	148	1,733

per cent⁽²⁾. Flowers⁽³⁾ has reported that from 2 to 9 per cent of all maternal deaths and 20 per cent of the deaths from cesarean section are due to anesthesia. These figures become all the more appalling when we consider that maternal deaths due to anesthesia are largely preventable. It will become clear that the majority can be prevented by a better understanding of the more frequent anesthetic complications and the use of a comparatively few prophylactic measures.

Material

From August, 1946, to December, 1954, 1,733 maternal deaths were reported to the Committee on Maternal Welfare of the Medical Society of the State of North Carolina. In the opinion of that Committee, 45 deaths resulted primarily from anesthesia. In 60 per cent, serious obstetric, surgical, or medical complications undoubtedly were

contributory factors (table 2). These complications should not be interpreted to cast doubt on the primary cause of these deaths, but rather to emphasize the need for a better understanding of proper anesthesia for complicated obstetric cases.

All types of anesthesia were involved either singly or in combination, except caudal. These types will be discussed later in relation to the individual anesthetic complications. The absence of caudal anesthesia from this group reflects its infrequent usage in this state and the sampling error in a relatively small group of cases, and by no means exonerates it as a potential hazard.

Table 3 lists the various procedures which were performed or were to have been performed on these patients with respect to the various anesthetic complications. The wide range of procedures is obvious. The incidence of 13 per cent from dilatation and

Table 2
Medical, Surgical, and Obstetric Complications with respect to
Specific Anesthetic Complications

	Aspiration	Spinal Shock	Cardiac Arrest	Drug Reaction	Meningitis	Respiratory Paralysis	Unknown	Total
Early severe hypertension	1	1	1					3
Rheumatic heart disease	1			1				2
Unexplained shock							1	1
Appendicitis		1						1
Ectopic pregnancy (tubal)	1							1
Ruptured uterus	1							1
Toxemia		4	2				1	7
Cephalo-pelvic disproportion		1			1		2	4
Eclampsia		1				1		2
Placenta praevia				1				1
Abortion			1				3	4
No complications	9	3	3				3	18
Totals	13	11	7	2	1	1	10	45

Table 3

Various Operative Procedures
with respect to

Specific Anesthetic Complications

Procedure	Aspiration	Spinal Shock	Cardiac Arrest	Drug Reaction	Meningitis	Respiratory Paralysis	Indetermined	Totals
Vaginal delivery	7	2	4	1	0	0	5	19
Cesarean section	2	7	1	1	1	1	1	14
Dilatation and curettage	1		2				3	6
Tubal ligation (Postpartum)	1						1	2
Salpingectomy	1							1
Version and extraction	1							1
Appendectomy		1						1
Hysterotomy		1						1
Totals	13	11	7	2	1	1	10	45

curettage should not be unexpected. So-called "minor" operations are often done on an emergency basis on poorly prepared and often markedly anemic patients, who are more prone to anesthetic complications. The incidence of cesarean section, 31 per cent, is far higher than the average section rate. Furthermore, every type of anesthetic complication seen in this series was associated with cesarean section. These facts emphasize the frequency and variety of potential complications associated with anesthesia for cesarean section.

Types of Complications

The specific anesthetic complications could be readily determined in all but 10 cases, which have been listed as "indeterminate" because of a lack of adequate information (table 4). Aspiration of stomach contents, spinal shock, and cardiac arrest accounted for 69 per cent of the deaths.

Aspiration of stomach contents

Vomiting and subsequent aspiration are an ever present threat to the parturient woman, whether under local, regional, or general anesthesia. In this series, 12 patients received general anesthesia (9 ether, 2 Pentothal and gas, and 1 chloroform), and 1 pudendal block. The high incidence of ether anesthesia is in accord with the reports of Mendelson⁽⁴⁾ and others⁽⁵⁾, who have found it to be the most common agent associated with fatal aspiration.

Table 4

Mechanism Responsible for Maternal
Deaths due to Obstetric Anesthesia

Mechanism	No. Cases	Per Cent
Aspiration of Stomach Contents	13	28.9
Spinal Shock	11	24.5
Cardiac Arrest	7	15.6
Drug Reaction	2	4.4
Meningitis	1	2.2
Respiratory Paralysis	1	2.2
Indeterminate	10	22.2
Totals	45	100.0

Four patients had medical or obstetric complications, including an ectopic pregnancy, congestive heart failure, a ruptured uterus with a transverse lie, and severe hypertension at 12 weeks' gestation.

Aspiration occurred most frequently during induction of anesthesia, but also after induction and in the immediate postanesthetic period.

Three patients died immediately of massive atelectasis following obstruction of large bronchi with large solid food particles. The remaining 10 died from 5 to 72 hours *post partum* of pneumonia or pulmonary edema. Aspiration of liquid vomitus results not only in bronchopneumonia but also in bronchiolar and pulmonary arteriolar spasm from the irritating and necrotizing action of gastric hydrochloric acid. The immediate picture is that of bronchospasm, with or without subsequent pulmonary edema. Two major reactions, then, are possible after aspiration, and must be recognized before specific treatment can be carried out. Should vomiting occur, the following treatment is suggested:

1. Discontinue anesthesia immediately and remove mask.
2. Place the patient on her side in the Trendelenburg position.
3. Remove vomitus from the oropharynx by suction.
4. Use endotracheal intubation and aspiration of tracheobronchial secretions, if necessary.
5. If massive pulmonary obstruction is present, employ bronchoscopy immediately.
6. To relieve bronchospasm, slowly administer 0.25 grains of aminophylline intravenously.
7. Administer oxygen by mask with intermittent positive pressure on inspiration to reduce the effort of breathing. If pulmonary edema is present, intermittent positive pressure oxygen will reduce the pathologically elevated nega-

tive intrapulmonary pressure, counteract the elevated hydrostatic pressure in the pulmonary capillaries, and retard filling of the right side of the heart, relieving pulmonary congestion.

8. Further treatment of pulmonary edema includes use of the following:
 - a. Morphine in the conscious patient to depress the Hering-Breuer reflex
 - b. Rotating tourniquets to increase peripheral venous stasis and thus decrease venous return
 - c. Intravenous digitalization, when indicated
 - d. Phlebotomy or dehydration, if necessary, to reduce pulmonary venous pressure
 - e. Concentrated albumin therapy, if indicated, to increase plasma colloidal osmotic pressure.

The following prophylactic measures are recommended:

1. Advise patients not to eat or drink after labor starts.
2. Permit no ingestion of food during labor.
3. Avoid inhalation or intravenous anesthesia in the presence of respiratory infection or if food has been ingested within four hours of the onset of labor. Stomach contents must be removed if general anesthesia is necessary.
4. Use a transparent face mask to recognize vomiting immediately.
5. Discontinue anesthesia if the patient is retching or vomiting.
6. Observe the postanesthetic patient closely until she has reacted and pharyngeal reflexes have returned.

Spinal shock

The ease with which a needle can be inserted into the lumbar subarachnoid space leads to the frequent abuse of spinal anesthesia. The apparent simplicity of this technique encourages its use by physicians who consider themselves experts at performing lumbar puncture but who lack a knowledge of the basic principles of spinal anesthesia. This factor has greatly contributed to the tragic history of spinal anesthesia in obstetrics.

The use of surgical doses of local agents for spinal anesthesia in the obstetric patient is one of the primary reasons for circulatory and respiratory collapse. Of the 11 patients in this group, 9 received dosages which were excessive for the contemplated procedure. Two patients who were delivered vaginally and 7 who were delivered by cesarean section received overdoses of the anesthetic agent.

The most significant obstetric complication encountered was hypertension from

toxemia of pregnancy or cardiovascular disease. Six patients had severe hypertension, and in each the rapidity and gravity of spinal shock far exceeded that seen in the other patients. One patient had acute appendicitis at 32 weeks' gestation, and 2 had cephalopelvic disproportion.

Anyone administering spinal anesthesia must anticipate and be prepared to combat hypotensive episodes. Treatment must be prompt and effective to prevent severe shock and/or respiratory collapse. *Spinal shock is preventable in all cases.* Prophylaxis and early recognition are important means of prevention.

The following prophylactic measures should be observed:

1. Limit maximum dosages for vaginal delivery to 35 mg. of procaine, 3 mg. of Pontocaine, and 2.5 mg. of Nupercaine.
2. Limit maximum dosages for cesarean section to 70 mg. of procaine, 7 mg. of Pontocaine, and 5 mg. of Nupercaine.
3. Limit maximum concentrations for spinal anesthesia to 5 per cent procaine, 0.5 per cent Pontocaine and 0.1 per cent Nupercaine.
4. Use hyperbaric solutions of anesthetic agents by diluting with equal volumes of 10 per cent dextrose.
5. Give the injection between uterine contractions.
6. Following intrathecal injection, maintain close observation of the analgesic level to prevent the complications of extensive anesthesia.
7. If the blood pressure is 110 systolic or less, give a vasopressor such as ephedrine, 25 mg. intramuscularly, before the intrathecal injection.
8. Keep head elevated and observe blood pressure, pulse, and respiration closely at frequent intervals after the hyperbaric spinal is given.
9. Have apparatus for administering oxygen and artificial ventilation immediately available.
10. Have immediately available a vasopressor such as Neosynephrine to combat hypotension.
11. Have an intravenous glucose solution running on all section patients before the spinal is given.
12. Remember that excessive hypertension may follow the intravenous administration of ergot preparations if the patient has already received a sympathomimetic amine such as ephedrine or epinephrine.
13. Administer oxygen by nasopharyngeal catheter.
14. Do not use spinal anesthesia if the hemoglobin is below 10 Gm., in toxemia of pregnancy, and in the hemorrhagic complications of pregnancy.

15. The administration of chlorpromazine (Thorazine) contraindicates the use of spinal anesthesia. A severe hypotension may develop with this combination.

Treatment includes:

1. Autotransfusions by elevation of the legs
2. The administration of artificial ventilation with 100 per cent oxygen by mask
3. Support of the blood pressure with an intravenous vasopressor such as 10 mg. of Neosynephrine in 500 cc. of 5 per cent glucose solution (Titrate the rate of infusion to the desired blood pressure level.)

Cardiac arrest

Cardiac arrest is an exceedingly rare anesthetic complication (1 in 5,000 cases)⁽⁶⁾. Serious cardiac arrhythmias are primarily ventricular in origin, consisting of ventricular tachycardia or fibrillation and asystole. The major contributing causes in obstetrics are hypoxia, hypercapnia, agents which sensitize the conductive tissues of the heart to epinephrine, excessive anesthesia, and pituitary extract. Cyclopropane, chloroform, ethylchloride and trichlorethylene (Trilene) all sensitize the conductive tissues of the heart to epinephrine.

Seven cases of cardiac arrest occurred in this series, all in association with general anesthesia. Three patients received cyclopropane alone or in combination with other agents, 2 trichlorethylene anesthesia, 1 trichlorethylene anesthesia with pudendal block, and 1 Pentothal (750 mg.). Complications included 2 cases of preeclampsia, 1 missed abortion, and 1 case of severe hypertension at 12 weeks' gestation. Cardiac massage was performed on 2 patients.

When cardiac arrest occurs, circulation of oxygenated blood must be obtained within three to four minutes to prevent irreversible cerebral damage. Oxygen, 100 per cent, and artificial ventilation should be administered, preferably by endotracheal tube. The heart should be exposed through the fourth interspace and manual cardiac compression begun immediately so as to obtain a palpable brachial pulse and a systolic blood pressure of 80 mm. of mercury or more. No drugs should be administered until the heart is visualized. The following prophylactic measures are recommended:

1. Smooth induction of anesthesia with adequate oxygenation and elimination of carbon dioxide
2. Avoidance of reflex stimulation and very light or very deep anesthesia

3. Adequate premedication given in the proper dose, by the proper route, and at the proper time
4. Trichlorethylene used only for analgesia, not anesthesia
5. Avoidance of trichlorethylene, cyclopropane, chloroform, and ethyl chloride in the presence of heart disease, except when used by a competent anesthesiologist who is aware of the specific pharmacologic properties and pathologic contraindications of these agents
6. Avoidance of epinephrine, ephedrine, Methedrine, and Levophed in conjunction with cyclopropane, chloroform, ethyl chloride, and trichlorethylene. Vasoxyl and Neosynephrine are safe vasopressors with these agents. Posterior pituitary preparations, such as pituitrin or Pitocin, for oxytocic purposes should not be used in conjunction with these agents. Pitocin, although a highly purified preparation, is not entirely safe. Ergotrate is a safe substitute. Excessive hypertension may follow the intravenous administration of ergot preparations, if the patient has already received a sympathomimetic amine such as ephedrine or epinephrine.

Miscellaneous complications

Two deaths resulted from drug reactions. Such reactions may result from idiosyncrasy or overdosage, and consist of sudden circulatory and respiratory collapse, or initial central stimulation of respiration and circulation, with convulsions followed by paralysis and depression⁽⁷⁾.

Both patients had local anesthesia and died with a convulsive episode. One received 1 per cent procaine for a cesarean section for placenta praevia, the other had a pudendal block with 40 cc. of 2 per cent Xylocaine plus trichlorethylene analgesia, for a vaginal delivery.

Treatment of toxic reactions to local anesthetic drugs includes:

1. The administration of 100 per cent oxygen by mask, with intermittent positive pressure on inspiration to maintain efficient alveolar ventilation
2. Ultra-short acting barbiturates (Pentothal or Surital) given intravenously to control convulsive phenomena if central nervous system stimulation predominates
3. Intravenous vasopressors (Neosynephrine drip using 10 mg. in 500 cc. of 5 per cent dextrose in water) to maintain efficiency of circulation if central nervous system depression predominates.

The following prophylactic measures will reduce the incidence of drug reactions:

1. Avoid local anesthetic drugs in patients with a history of sensitivity.

2. For premedication give barbiturates in the proper dose at the proper time.
3. Use the lowest effective drug concentration.
4. Use the lowest effective amount of drug. Limit procaine to 1 Gm. and Xylocaine to 0.5 Gm.
5. Avoid intravascular injection.
6. Avoid injection into an inflamed area.
7. Use the proper concentration of a vasoconstrictor (epinephrine, 1:200,000).

One patient died of meningitis complicating spinal anesthesia. Such meningitides are most frequently caused by those gram-negative bacteria that are usually found on the skin of the back, buttocks, and legs⁽⁸⁾. Typically, the first symptoms appear 24 to 48 hours following the anesthesia. Successful treatment depends on early recognition of the infection and appropriate specific therapy. Strict aseptic conditions must be maintained during the spinal tap. It is recommended that all drugs for subarachnoid injection be autoclaved and kept in dry sterile containers to prevent contamination with irritating chemicals such as alcohol. Spinal anesthesia is contraindicated in the presence of central nervous system disease or when the tap must be made through infected inflamed skin.

Peripheral respiratory paralysis

This condition caused one death, the result of Intocostrin overdosage for cesarean section. Curare and curare-like agents have little place in obstetrics. No further muscle relaxation is needed for cesarean section, and the routine use of such agents for vaginal deliveries contributes little to the ease of delivery, while adding considerably to the anesthetic risk.

The use of muscle relaxants calls for an anesthetist who is adept at using an anesthetic gas machine and performing endotracheal intubation. Should respiratory paralysis ensue, intermittent positive pressure on inspiration must be performed in order to maintain adequate alveolar ventilation. As long as such ventilation is maintained, the patient's life is not endangered. Edrophonium (Tensilon) is a short-acting antagonist for the muscle relaxants which act by preventing depolarization of the myoneural junction (d-tubocurarine and Flaxedil). At present there is no available drug to antagonize the muscle relaxants which act by producing a persistent depolarization of the myoneural junction (Anectine and Syncu-

rine). The use of muscular relaxants and their antagonist requires a thorough knowledge of their pharmacologic action. They should only be used by those who have the knowledge, skill and experience to do so with absolute safety to the patient. Thus the muscle relaxant drugs have no place in obstetric anesthesia unless a competent anesthesiologist is available.

In 10 cases the specific anesthetic complication could not be determined. All 10 patients received general anesthesia (2 Pentothal, 1 Pentothal and cyclopropane, 1 cyclopropane alone, 1 chloroform, and 5 ether, with or without Vinethene). It is probable that some of the previously discussed complications accounted for some of these deaths. In addition, overdosage and inadequate care of the postanesthetic patient were contributory factors. Two markedly anemic patients received Pentothal. In such patients, the vasodilatation associated with Pentothal should contraindicate its use. One patient was in unexplained shock when anesthesia was administered. Common sense should contraindicate any anesthesia except local under such circumstances.

Comment

Anesthesia always involves at least three variables: the patient, the agent and technique chosen, and the anesthetist. By far the most important variable is the anesthetist. The administration of safe obstetric anesthesia directly depends on his knowledge, experience and skill. When a patient tolerates an anesthetic poorly, it is not that she does not tolerate the agent, but rather that she does not tolerate the anesthetist. It is relatively easy with modern anesthetics to keep a patient free from pain and adequately relaxed during delivery. The most important and difficult feat, however, is to maintain adequate oxygenation of the tissues and the unimpeded removal of carbon dioxide. Hypoxia in one form or another and hypercapnia are the chief causes of maternal anesthetic deaths. The aspiration of vomitus with concomitant respiratory obstruction, and high spinal anesthesia with respiratory paralysis and circulatory depression cause death by producing hypoxia and hypercapnea. Cardiac arrest itself, in most instances, is the direct result of hypoxia, hypercapnea, or overdosage of the anesthetic

drug. Thus attention directed toward the prevention of hypoxia and hypercapnea should increase the safety of obstetric anesthesia.

Trained medical anesthetists are rarely available for obstetric patients in North Carolina. In many cases, anesthesia is administered by inadequately trained personnel, and frequently the obstetrician must administer his own. It become imperative, then, that every obstetrician should be familiar with the common anesthetic complications and with their prophylaxis, early recognition, and treatment. Only by such means can unnecessary maternal anesthetic deaths be avoided.

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Purpura Fulminans Following Chickenpox

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Purpura fulminans is a rare clinical disorder characterized by a sudden onset of severe, rapidly progressive, non-thrombopenic purpura, usually occurring symmetrically in the lower extremities and followed by profound anemia and shock terminating in death. There are a number of reports concerning the appearance of this process following scarlet fever⁽¹⁾. Few cases following chickenpox are recorded. It is the purpose of this paper to report such a case in one of identical twins, with recovery.

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Case Report

An 8 year old white girl was admitted to the North Carolina Memorial Hospital on January 8, 1955, with the complaint of blue, painful, swelling in both legs. She had been well until nine days prior to admission when she developed mild chickenpox simultaneously with her identical twin. She remained ambulatory and appeared to be doing well until four days prior to admission, when an area of bluish-red discoloration, 3 inches in diameter, appeared on the lower part of the right leg. She was seen by the family physician, who found her to be afebrile and with no abnormalities except for the discoloration described previously, and healing chickenpox lesions on the trunk. Three days prior to admission the discoloration extended towards the knee and around the calf, with some local swelling, and the patient was put on bed rest. The following day bluish areas were first noted on the left



Figure 1



Figure 2

leg. One day prior to admission, the swelling on the right extended to the knee, and the child began to complain of pain. On the day of admission swelling and discoloration extended rapidly in both lower extremities, and the patient became quite pale and listless. She was seen again by her physician, who accompanied her to the North Carolina Memorial Hospital for further evaluation and treatment.

The patient's past history was unremarkable. The identical twin showed an optimal course after chickenpox. Three other siblings contracted mild chickenpox and recovered uneventfully.

On admission the patient was seen to be an extremely ill, apprehensive youngster who was in shock. The temperature was 100.F., pulse 130, respiration 30, and the blood pressure 70 systolic, 40 diastolic. There was marked pallor of the skin and mucous membranes. There were 8 to 10 foci of typical healing varicella lesions on the trunk. There were no petechiae. The lower abdomen was moderately tender, without a

detectable mass. Both lower extremities were markedly swollen, tense and cool. Large confluent irregularly delineated blue-black areas with red periphery extended from the ankles to the thighs (fig. 1). There was marked pallor of the feet. The femoral pulses were palpable; the dorsalis pedis pulsations were not felt. There were no ecchymoses proximal to the thighs.

Laboratory data on admission: The packed cell volume was 19.5 per 100 cc., hemoglobin 7.9 Gm., white blood cells 32,800, with 91 polymorphonuclears, 9 lymphocytes, and 210,000 platelets. Coagulation time was 4 minutes, bleeding time normal. The tourniquet test was reported 3 to 4 plus by one examiner. Repeat tourniquet tests 24 hours later were negative. Prothrombin, proconvertin, proaccelerin were all at high normal levels. Urinalysis showed few hyaline and granular casts; acetone was present. Nose and throat cultures grew alpha Streptococci, Hemophilus and Neisseria species. Blood cultures showed no growth. The antistreptolysin titer was less than 100 units.



Figure 3



Figure 4

A test for C reactive protein was positive.

Hospital course

Immediately after admission the patient was given normal saline intravenously while blood was being typed and crossmatched. She was then given 1,000 cc. of whole blood, and her blood pressure returned to normotensive levels three hours after admission. The administration of cortisone was initiated on an empirical basis because of the suggestion of fulminating vascular damage and its possible relationship to hypersensitivity phenomena in the presence of a desperate situation. Shortly after admission the feet, which originally were quite pale, became blue, suggesting increasing venous obstruction. This sign was followed by evidence of arterial obstruction. Femoral pulsations became impalpable, but remained audible for several hours until no bruit could be elicited. Associated with this condition was a transient rise in blood pressure to hypertensive levels, suggesting diminution in size of the vascular space. At

this time numerous bullae began to appear over the lower legs and progressively extended to the thighs and later over the feet, becoming confluent in many areas (fig. 2). The fluid contained in these bullae was serous, and showed no growth on culture.

Although shock appeared to be controlled, the patient's general condition continued to deteriorate during the first 36 hours in hospital. She became quite restless and confused, and progressed to a state of semicomatose. There was a single brief generalized convulsion 18 hours after admission. A lumbar puncture following this episode yielded normal cerebro-spinal fluid except for a pressure of 240 mm. Because of evidence of acute arterial insufficiency in the lower extremities an attempt was made to relieve vasoconstriction, which might have been contributory. This effort was made by means of an epidural block employing hourly injections of 0.5 per cent xylocaine through polyethylene tubing into the epidural space. The lower extremities were packed in ice bags in an attempt to decrease the metabolic

demands of ischemic tissue. The patient was also given additional whole blood, intravenous fluids, hydrocortisone, ascorbic acid, diphenhydramine, penicillin and tetracycline. The purpuric process remained localized to the lower extremities except for a single area of necrotic ecchymosis surrounded by a red border over the right buttock.

On the third hospital day, 12 hours after the epidural block was initiated, femoral pulsation again became audible and then palpable. Concurrently swelling in the legs began to diminish, and for the first time the areas of uninvolved skin appeared pink and showed blanching on pressure (fig. 3). The patient's general status also began to improve as she became oriented and alert. As the progression of the basic process was controlled, the danger of thrombus propagation and embolization became of major concern. Accordingly, anticoagulants were introduced, initially with Heparin and later Dicumarol. The extremities were placed in sterile occlusive dressings. During the following week the extent of the necrosis became more conspicuous in the form of black dead skin, at first evident over the toes and heels, but eventually involving both lower extremities to a mid-leg level (fig. 4.). The epidural block was discontinued on the sixth hospital day, anticoagulants were omitted after the seventeenth day, and cortisone was stopped after 24 days. The subsequent course was characterized by a prolonged period of repair from the massive damage resulting from this process.

Long term surgical care was based primarily on meager knowledge of the process obtained from the literature as to the general superficial nature of the disease and on the physical findings which led us to believe that the deep circulation to the ankle and probably the posterior foot was intact. These findings were two soft areas of apparently viable tissue on each ankle, subjective report of deep sensibility in each foot, and the unusually benign course with regard to systemic symptoms. Consequently, in an effort to preserve as much limb length as possible and the hope of having even portions of each foot survive, periodic debridement from above downward, protection against infection, and general supportive measures were carried out. Only after ankle and foot debridement had been effected did



Figure 5

we learn that the circulation did not extend beyond the ankle and that complete sequestration of the foot at the ankle had taken place (fig. 5). Subsequently bilateral disarticulation at the ankle was performed and granulations were revised. Pathologic examination of the feet showed gangrene, but did not permit conclusions as to the pathogenesis of this end state.

Plans for future management include split grafts with subsequent revision in the mid-calf regions, and possibly full-thickness flap coverage if this becomes necessary for prosthesis bearing. With the aid of prostheses for this bright active child, a functionally adequate end result is anticipated.

Comment

Chickenpox is commonly regarded as one of the more benign of the common communicable diseases of childhood. Complications of this disease are primarily those of secondary bacterial infection, with occasional reports of central nervous system involve-

ment and relatively rare occurrences of purpuric phenomena and gangrene. In a review of 2,534 hospitalized cases of chickenpox, Bullowa and Wishik reported complications in 5 per cent^(2b). This included 4 cases of gangrene, 3 of which followed cellulitis. The fourth patient presented purplish discoloration on the extremities, followed by bleb formation and subsequent gangrene.

There are reports in the American literature of at least 3 other cases following varicella^(2a,c,f). The role which the varicella virus may play in the pathogenesis of this process is obscure. The relatively greater frequency with which the disorder has occurred following scarlet fever suggests that the Streptococcus might have been related here. The possibility of a pre-existing streptococcal infection has been considered, although the reported cases following varicella contain no evidence for this possibility. There was nothing in the history of our patient to suggest recent streptococcal infection. An antistreptolysin titer which was not elevated on admission remained unchanged during the convalescent phase.

Since the original case report of purpura fulminans by Henoch in 1886, there have been a number of sporadic reports in the literature^(c). Elliott^(1c) reviewed the literature to 1909 and reported an additional case, making a total of 56 cases. There are few cases in which the laboratory and pathologic findings are extensive enough to define the exact nature of the process. A ne-

crotizing vasculitis has been described in several cases reaching autopsy. Although we have no histologic proof, in our patient the process appeared to be extensive vascular damage involving small vessels in the skin and subcutaneous tissues of the lower extremities. This allowed interstitial blood loss and accounted for the massive swelling of the lower extremities and evidence of shock due to loss of blood. The progression of this process resulted in venous and later arterial obstruction, probably due to extravascular compression. Subsequent diminution of this vascular necrosis allowed resorption of interstitial hemorrhage and return of arterial and then venous function. This was followed by a prolonged reparative process.

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*Other methods of therapy that are still being neglected are phlebotomy and thoracentesis. Many patients with congestive failure may be helped considerably by removal of a pint of blood. Nowadays, when most hospitals have blood banks, this procedure may have a double value. Whenever the cervical veins are distended and the venous pressure elevated, especially if hypotension is not present, this simple operation can cause striking improvement. In other cases the presence of a hydrothorax, particularly on the right, is overlooked. At times even the removal of 500 cc. of fluid will initiate a period of improvement in the patient's progress.—S.A. Levine: Some Pitfalls in the Care of Cardiacs, *Ann. Int. Med.* 42: 1278 (June) 1955.*

The Neurological Differential Diagnosis of Conversion Hysteria

ROBERT STROBOS, M.D.

WINSTON-SALEM

The neurologist is frequently called upon to decide whether symptoms are the result of an organic condition or an emotional disturbance. This paper attempts to outline certain criteria that may be of help in such problems. Essentially it is a discussion of certain considerations and special devices that one may use to unmask a patient and of the aids and pitfalls pertaining to such a procedure. Since the paper deals with neurologic problems, no attempt has been made to distinguish between malingering and hysteria, because the question of motivation, whether fully conscious or not, arises only after organic illness has been ruled out.

Hysterical Deafness and Blindness

The examination of the following patient required certain techniques pertinent to the present discussion.

Case 1

Six weeks prior to admission, this 43 year old farmer fell asleep in his tobacco barn while under the influence of alcohol. When he awoke, the left side of his face was numb and paralyzed, his left eye blind, and his left ear deaf. He had a severe headache and felt dizzy. These complaints persisted, the patient continued to indulge in alcohol, and either this indulgence or his dizziness caused several falls. When he noticed, a week prior to admission, that the vision in his right eye had also started to fail and that his left arm had become weak, he finally decided to consult a doctor.

On examination, the patient could not see at all with the left eye and with the right eye could only dimly distinguish finger movements. The conjunctiva on the left was injected, there was blepharospasm on the right side, and tears ran out of his eyes. The pupillary reflexes and fundi were normal. A peripheral facial palsy was present on the left, and the left side of the face felt numb to pin prick. No sounds were perceived in the left ear. The left arm was weak, and both the left arm and leg showed impairment in all forms of sensa-

tion, especially pain, in a glove and stocking fashion. The patient occasionally showed a gross tremor involving the whole right arm. The rest of the examination, including the reflexes, was normal.

Several points aroused suspicion. Testing the strength of dorsiflexion of the hand required considerable urging. When the patient finally applied himself against counterpressure, the hand at times would give way suddenly. When he cooperated, he not only innervated the muscles of dorsiflexion, but also the antagonists to an equal degree. This could be demonstrated by palpation of the lower arm, and also by the lack of normal rebound upon sudden withdrawal of the counterpressure. These two signs—the erratic, waxing and waning quality of innervation, with frequent episodes of sudden giving way, and the simultaneous innervation of synergists and antagonists resulting in a sort of plastic rigidity—are both typical signs of hysterical weakness.

We then turned our attention to his deafness and blindness. It is easier to unmask complete hysterical deafness than unilateral deafness, because in the former one can usually trick the patient into reacting to sudden unexpected noises (in the meantime watching for the cochleo-orbicular reflex). The hysterical patient continues to speak with a normal voice, while the genuinely deaf patient acquires a typically hesitant and monotonous intonation. Vestibular tests, including Barany's, remain normal, which is frequently not the case in organic deafness. An often successful method is to put the ear pieces of the stethoscope in the patient's ears, humming in the bell behind his back while having him read aloud from a book. A patient who is not deaf will raise his voice in an effort to overcome this background noise.

For this patient, the stethoscope method was modified. Two bells were attached to the two rubber tubes of the stethoscope, one leading to the left ear and the other one to the right ear. Two examiners now whispered different numbers simultaneously into the two bells, requesting the patient to repeat them. He became confused, and claimed to be unable to distinguish any number. If he could not hear with his left ear, this confusion would not have occurred, and he was so informed. Thereafter he would repeat the numbers, as often as not repeating the one whispered into his left ear. This procedure, by the way, cured his deafness.

Thereafter the patient's visual complaints were scrutinized. Here again objective signs were absent.

Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Pinehurst, May 4, 1955.

From the Department of Neurology and Psychiatry, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

The fundi were normal as were the pupillary reflexes, even in the left eye, which was unable to distinguish between light and dark. The patient could barely count fingers at a distance of 2 feet with his right eye. This immediately offered an opportunity for checking discrepancies, as the distance for perception of gross arm movement is roughly 60 times as great as the distance for finger-counting. The patient's behaviour and his ability to get around and to perform well coordinated movements contradicted his alleged severe loss of vision. His attention was drawn to this fact, his complaints were belittled, and his vision soon improved to the degree that he could read the first two lines of Snellen's visual maps. Then it was quite easy to show that he could always read these same first two lines whether the chart was held at a distance of one or of several feet. Visual fields taken regularly showed initially an increasing constriction. Again, at different distances the actual total field remained identical. This represents the tubular constriction which is pathognomonic of hysteria, in contrast to the constricted cone vision sometimes seen in organic disorders such as retinitis pigmentosa.

The final diagnosis was Bell's palsy and conversion hysteria. This patient is a good example of how, in the hysterical patient, conversion mechanisms are often triggered by incidental disease or trauma.

It is important to consider that the neurologic examination consists, for a great part, of an evaluation of subjective information. Certain signs have objective value and cannot be simulated, as, for instance, abnormalities of the eyegrounds, irregularity or lack of reactions of the pupils, rhythmic nystagmus, paralysis of single eye muscles, or reflex abnormalities. For information concerning sensation, motor ability, motor strength, and coordination, however, we depend on the cooperation of the patient, and it is in these areas that hysterical symptoms are rampant.

Some of the methods pertinent to the distinction of real and hysterical deafness or blindness have been discussed. In hysterical unilateral blindness, a prism glass in front of the normal eye will often produce double vision, proving that both eyes function. Also, atropine in the normal eye, abolishing its accommodation, will not interfere with reading as it should were the other eye blind.

Motor Disorders

Muscular weakness

Hysterical motor involvement may simulate either pyramidal tract or nerve lesions.

In hysterical hemiparesis, the face and tongue are usually not involved; the reflexes remain normal, including the abdominals, and no pathologic reflexes are obtained. The common picture of organic hemiplegia with flexion of the arm, pronation of the hand and flexion of the fingers, and extension of the leg and foot with circumduction on walking are usually not present in hysteria, and very bizarre postures occur indeed. The affected foot shuffles in a flat position over the floor, or the foot is not advanced beyond the position of the leading foot.

We have seen several patients with atypical or abortive muscular disorders which had been diagnosed as hysteria. One example is found in the following case.

Case 2

A 29 year old married woman for three months had complained of generalized muscular soreness and increasing weakness, so that by the time of admission she was unable to stand or walk. She also mentioned that her breasts had recently shrunk, and had almost disappeared. Because of the patient's seeming unconcern and the variable degree of weakness, the case had been diagnosed as hysteria. Examination disclosed that all the proximal muscles of the extremities were weak, while the peripheral muscles retained normal strength. It is rare for hysteria to involve proximal muscles and spare the hands and feet. If the patient were standing with support, she could hold herself up by decreasing her lumbar lordosis, increasing her thoracic kyphosis, and hanging herself up in a precarious balance on her iliofemoral ligaments, a favorite posture of lazy people for which very little strength is needed. If her lumbar lordosis were forcefully increased, she would immediately fall, because this position—that of the soldier at attention—requires much more strength, especially of the gastrocnemii, the quadriceps femoris, and the major gluteal muscles. When the upper arm was adducted, palpation disclosed that only the latissimus dorsi contracted, while the pectoralis major remained completely flaccid and turned out to be grossly atrophied. This explained the reduction in breast size since the pectoralis major adds to the bulk and tone of the breasts. Muscle biopsy of the pectoral and deltoid muscles showed definite muscular disorder, suggestive of muscular dystrophy.

Abnormal movements

So much for muscular weakness. Other motor phenomena often demonstrated by hysterical patients are lack of coordination and abnormal movements. Ataxia is commonly presented as a complete inability to stand or walk, although the patient can per-

form single muscular movements with good strength while lying in bed. Peculiar Romberg reactions are often seen, as when the patient, closing his eyes, immediately falls forward or backward, depending on where the examiner is standing, without the preliminary swaying of a genuinely positive Romberg reaction.

Tremors and abnormal movements are usually acute, and are coarse, violent and maximal from the onset. They tend to increase with the amount of attention received or the degree of emotional tension present, and often disappear completely when the limb is used for other purposes. This is unlike true tremors and abnormal movements, which interfere to a certain degree with purposeful movement even though they may decrease at such times, as in Parkinson's disease.

Case 3

A married woman of 24 years who had been pregnant for eight months stated that recently she had been bothered by abnormal movements in her right arm. First she noticed a tendency of her middle and index fingers suddenly to cross. Then her whole hand started to feel weak and subsequently showed sudden jerking movements in a coarse, quick fashion. This became worse until jerking movements also appeared in the elbow and shoulder. These movements made it impossible for her to work at all, and when her right leg also began to feel weak, she decided to move back to her mother's, because she felt that as she could not do anything anyhow, she might as well "be treated as a baby."

On examination the patient demonstrated continuous jerking movement of the right upper extremity. The more one looked at the arm, the worse it jerked. Yet these movements did not really interfere with fine movements or coordination. As a matter of fact, when tone, coordination or strength was being tested, the movements stopped entirely, to reappear again as soon as the hand was at rest.

Now these symptoms just do not exist in neurology. Choreic movements are widespread, and jump from limb to limb and muscle to muscle. They interfere with normal activity because of the suddenness of their appearance, breaking up the normal pattern of motion by adding a dancing, jerking, erratic quality. Chorea is not caused by a single small lesion and thus does not remain limited to a single extremity. With mild suggestion, this patient's symptoms gradually disappeared

completely.

Case 4

A 45 year old farmer, complained that he could not keep his tongue in his mouth. During the interview the tongue would continuously protrude, move around a bit, and then withdraw again, interfering with speech. One can easily understand why the resident thought of hysteria. It was noted, however that the patient sat and walked stiffly, that normal arm swing was absent, and that the upper extremities showed a mild cog wheel rigidity. Repetitive tongue protrusion is not unusual in post-encephalitic Parkinsonism, and a history of severe "flu" affecting all the members of the family in 1923 was subsequently obtained.

Sensory Abnormalities

I want to summarize briefly the sensory manifestations of hysteria. These often involve one side of the body and extend to the mid-line, sensation of pain most impaired. Additionally, if the face is involved, the corneal reflex on that side remains normal, as does the pharyngeal reflex. Sometimes vibration will be appreciated on one side of the skull or sternum and not on the other side, an obvious impossibility. Intact coordination upon eye closure persists in the presence of greatly diminished position sense, as does the good performance of fine movements with an allegedly anesthetic hand.

A complete discussion of all possible hysterical symptoms would be too long. I might add a few points. Complete bilateral loss of taste is hysterical. The combined unilateral losses of smell, vision, taste, hearing, and cutaneous sensation are pathognomonic of hysteria. A patient with hysterical anosmia may not detect the smell of ammonia, which is appreciated through stimulation of the trigeminal nerve.

I would like to sound a warning about certain organic syndromes which are sometimes unjustly considered as hysteria. In certain cases of damage to the cortical association areas, one may encounter extremely complex symbolic disturbances that appear to be functional. I want to mention, for instance, the astasia-abasia and the hemiapraxia of frontal lobe disease, the perseveration in time of visual images, and the monocular diplopia or polyopia of parietal lobe disease. Usually, however, the entire behavior of these patients is strikingly suggestive of organic disease, preventing mistakes in this area. Very peculiar

seizures may originate in the temporal lobe, and in this respect some of our criteria in diagnosing hysterical attacks may have to be changed. The following is a case in point.

Case 5

A 23 year old married woman had had peculiar spells for five months. First, her head would feel as if it were swelling up. She would feel giddy, and her face, arms, and legs would start to feel tight. It would become difficult for her to swallow or breathe, as though her throat were closed up. Then she would begin to tingle all over, get weak and slide down, without losing consciousness. She would remain on the floor from eight to ten hours in a sort of trance, during which she could hear what was going on but was unable to move or answer because of a feeling of utter detachment and apathy. The patient also remarked that she had felt tired and listless for the past two months and disliked being in a crowd because then "things begin to addle in my head." An electroencephalogram showed a definite focus in the left temporal area. The patient was placed on Dilantin and phenobarbital medication, and has been free of attacks since.

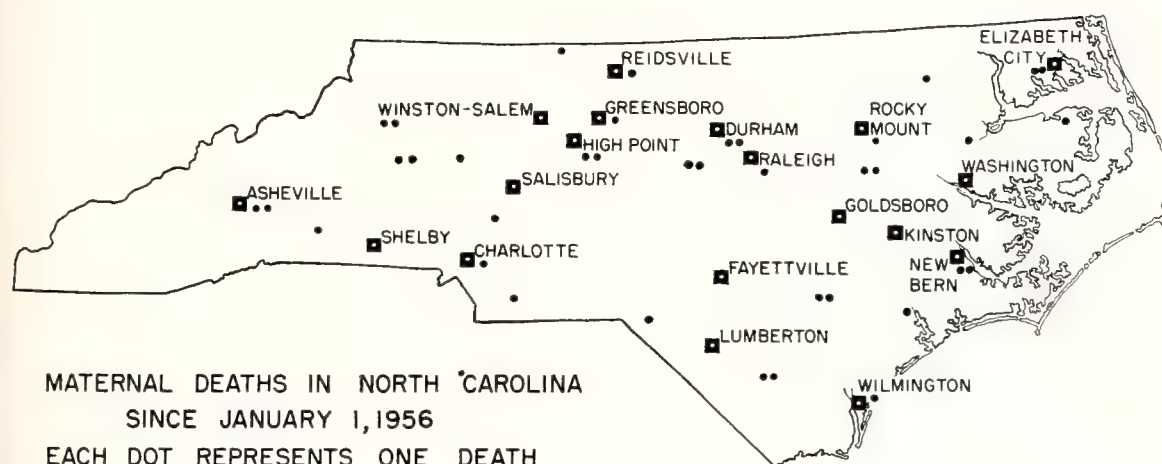
It is obvious that without the electroencephalographic findings, this patient could easily have been considered hysterical. Patients with peculiar spells should have an electroencephalographic study.

The Hysterical Personality

So far little has been said about the patient's attitude to his complaints and about

other behavioristic or historical details that might suggest hysteria. It is not enough to rule out organic disease; one must also gather material or impressions that will lead to a positive psychiatric diagnosis.

The hysterical personality is dissatisfied with and insecure about his own emotional experiences and tries to escape by performing for an onlooker. The more he can impress others with the genuine character of his sufferings and joys, the more his emotions increase in value for himself. The hysterical patient believes, suffers, and enjoys through his reflection in the eyes of others. The less impression his symptoms make the less likely they are to persist. They may disappear or they may be replaced by a more dramatic complaint, depending on the extent to which the patient depends on hysterical satisfaction. Whatever further psychotherapy the patient may need, the actual conversion symptoms should be met with an attitude of unconcern, measured neglect, failure to be impressed, and belittlement. This is the best attitude to nip the symptoms in the bud, and the most persistent cases of hysteria arise when the original physician has supported the patient's performance with his authority.



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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

MARCH, 1956

THE ONE HUNDRED AND SECOND ANNUAL SESSION

The program of the one hundred and
second annual session of the Medical So-
ciety of the State of North Carolina, to be
found on page 129 of this issue, should
whet the appetite of our members for the
mental pabulum to be served.

One of the most interesting features is
the audio-visual postgraduate instruction
offered on Sunday afternoon and through-
out Monday. This feature has attracted in-
creasing attention ever since it was inaug-
urated, and this year's menu is one of the
most attractive yet offered. Time can be
spent very profitably in viewing these of-
ferings.

The scientific exhibits, too, have become

of increasing importance. Most of them
represent the essence of years of study on
the part of those presenting them—and they
constitute a valuable form of postgraduate
education.

Our State Society has never had a presi-
dent who gave more unsparingly and un-
selfishly of his time and energy than has
Dr. J. P. Rousseau. May his administration
be crowned by a record attendance of mem-
bers and visitors. Plan now to attend the en-
tire session—or at least a good part of it.

THE ANNUAL PUBLIC RELATIONS CONFERENCE

Since the Grievance Committee of our
State Society was formed, a disproportion-
ately large number of the complaints have
been against younger doctors. Many of
these resulted from insufficient knowledge
of the art of medical practice rather than
intentional wrong-doing. As a result, this
year's Public Relation Committee and the
State Medical Society planned to indoc-
trinate medical students, house officers—
and also medical teachers—in the art of the
practice of medicine.

Two conferences, with a panel of dis-
tinguished speakers, were arranged on two
consecutive afternoons. The first, on Feb-
ruary 17, was held in Winston-Salem at
the Bowman Gray School of Medicine. The
second, on February 18, was held in Dur-
ham for the medical schools of Duke and
the University of North Carolina. The
guest speakers and their subjects were:
Dr. Walter B. Martin, Norfolk, Virginia,
past president of the American Medical
Association—"Progress in Medicine"; Dr.
Austin Smith, Chicago, editor of the *Jour-
nal of the American Medical Association*—
"What Manner of Men Are We?"; Horace
Cotten, Charlotte, president, Professional
Management—"The Business of Practicing
Medicine"; Dr. L. H. McDaniel, Tyronza,
Arkansas, past chairman of the Section on
General Practice of the American Medical
Association—"The Heart of Medicine." At
the conclusion of the four addresses time
was allotted for a general discussion, with
questions from the floor.

Each conference was well attended. The
interest taken was shown by the close at-
tention paid each speaker, and the num-
ber of questions asked at the end.

The presiding officer for both conferences was Dr. Amos Johnson of Garland, chairman of the Public Relations Committee. He and the other members of the committee—Drs. John Rhodes of Raleigh and Fred Garvey of Winston-Salem—are to be congratulated upon the success of this innovation in the field of public relations.

CONTINUING POSTGRADUATE EDUCATION

One of the newest of the numerous medical news digests is *Scope Weekly*, published by the Physicians News Service for the Upjohn Company. For the issue of February 29, four physicians were asked to answer briefly the question "What sources of information do you consider most important to your continuing postgraduate medical studies?"

Although the four answers came from widely separate localities, the number of points on which they agree is noteworthy.

* * *

Dr. William Eastman

Therapeutic Radiologist, Oklahoma City

The sources of information in a busy private practice could be listed in this order of importance: medical journals; international, national and state medical meetings; staff meetings and conferences of hospitals, and tumor clinics; pharmaceutical house publications; short and long postgraduate courses and refresher courses; closed circuit television.

The last method could become increasingly important in the near future. Also, variation in the order or importance could occur with more time at the disposal of the physician.

* * *

Dr. Fred Shalwitz

Surgeon and General Practitioner,
Buffalo, New York

The opportunities for postgraduate education for general practitioners in Buffalo are limited only by their available time.

The University of Buffalo Medical School has an excellent postgraduate program. A subject is concentrated into one day of intensive lectures and clinical work. Other subjects may take one week, and yet others one day a week for several weeks. Most of

the local hospitals have weekly conferences with the Clinico-Pathological Conference, probably of most value educationally.

Consultation with specialists on specific problem cases and "scrubbing in" on one's surgical cases is of inestimable value, especially if this is followed up with reading on the subject.

Medical conferences and lectures offered by various medical societies are other sources of continuing education.

For rapid and general review of practical problems, the various publications of the pharmaceutical houses and the various periodicals summarizing current medical literature are of great value.

* * *

Dr. James H. Hawley

General Surgeon, Boise, Idaho

My most important sources of information come from meetings with other doctors. For example during sectional and regionally meetings of the American College of Surgeons some of the best medical brains in the country present their views and discuss them. I also participate in local weekly tumor clinics and monthly surgical meetings to discuss treatment of my patients and hear other physicians do the same thing. I meet with the local American Journal Club weekly to discuss and review surgical literature.

The most advantageous journals from my point of view are *Surgery, Gynecology and Obstetrics*; *Annals of Surgery*; and the *New England Medical Journal*.

* * *

Dr. Wingate M. Johnson

Winston-Salem

A carefully selected medical library, kept constantly up to date. Medical journals: *The Journal of the American Medical Association*, the state medical journal, and a few others. Medical society meetings: county, state, and at least one national—preferably the American Medical Association. Hospital staff rounds and other educational features—including discussions in the staff room. Consultations, both formal and informal, with colleagues. Detail men. Last but not least—patients and members of their families.

PUT THE PLACEBO IN ITS PLACE*

Beecher⁽¹⁾ has just emphasized that placebos have a powerful effect in disease. In a compilation of material from 15 different studies involving over 1,000 patients suffering from a wide variety of complaints (wound pain, headaches, nausea, the common cold, and others) he found placebos gave a real therapeutic effect in 35 per cent of cases. Strict criteria of benefit were used. For instance, 58 per cent of persons suffering from sea sickness had complete relief of symptoms within thirty minutes of administration of a placebo. Furthermore, Beecher states that placebos are most effective when the stress (anxiety or pain, for example) is manifested.

These powerful placebo-effects were clearly manifested objectively as well as subjectively and some could be measured physically or chemically. Moreover, "toxic effects" were observed from placebos. As many as 10 per cent of one group of subjects studied suffered from nausea and 50 per cent of another complained of drowsiness. Objectively, dermatitis, diarrhea and other toxic manifestations have been observed.

Frequently medical students, interns, and residents (and perhaps practitioners) use placebos as a sort of detector to screen "organic" disease from "functional" disease. If a patient admits to benefit from placebo, he must be psychoneurotic, or worse. The evidence accumulated by Beecher from his work and the work of others gives the lie to this attitude. It is not true that "... the lower the intelligence of the patient the more he is benefited by a placebo." Patients have faith in their doctors and have hope of recovery. They believe what their doctor does for them will help them back to health. Beecher refers to Wolff as pointing out that to the patient the placebo is a symbol of the doctor saying, "I will take care of you." We must keep faith and not deceive our patients.

I do not mean to imply there is no place for placebos. As Beecher has pointed out: (1) The placebo may be used clinically as a

therapeutic instrument to pacify a patient for "... to pacify is to benefit;" (2) the placebo should be used experimentally in evaluating the effectiveness of drugs to avoid the effect of suggestion both on the patient and on the investigator; (3) the placebo is useful in determining the mechanism of action drugs.

Put the placebo in its place and keep it there!

—M. M. MUSSELMAN, M.D., OMAHA

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* * *

KREBIOZEN

Ever since Dr. A. S. Ivy's premature endorsement of the so-called "cancer cure," Krebiozen, and his consequent dismissal from the University of Chicago, much has been written, especially in the lay press, about that treatment. Many newspaper columnists have charged that the medical profession has been too autocratic in its stand on Krebiozen and on this treatment.

Such an excellent summary of the case against Krebiozen has been made by Dr. Charles S. Cameron, Medical and Scientific Director of the American Cancer Society, that it is reproduced in full as it appeared in the *Virginia Medical Monthly*.

Defense of the underdog is so esteemed by Americans that it runs the risk of becoming dogmatic, governing all cases, regardless of merit.

Krebiozen may be a case in point. Its introductions to the public was launched on the premise that it would never be fairly received or tested. Ignoring the customary methods of quietly conducting clinical trials, the originators of this proposed cancer treatment persuaded a distinguished scientist to go along with them in a widely-publicized and ballyhooed debut in the form of a hotel-ballroom Sales Promotion stunt and expensive-appearing brochure with others to follow.

This is not the manner in which reliable and authentic compounds are given to the public to fight disease. Such wonderful drugs as the sulfa compounds, the antibiotics, the hormones, were quietly tried on thousands of cases before the public was informed of their usefulness as therapeutic agents.

Even so had Krebiozen been a worthwhile treatment for cancer by now its efficacy would be well known. It has been available to doctors for several years. It has had a series of tests, reported on by the American Medical Association and by a committee of the National Research Council and declared to be without merit as a therapeutic treatment for cancer.

Reprinted from the Nebraska State Medical Journal 11:71 (March) 1956.

From the Department of Surgery, University of Nebraska College of Medicine, Omaha 5, Nebraska.

Committees and Organizations

AUTOMOTIVE CRASH INJURY RESEARCH

For the past two years the Medical Society of the State of North Carolina, the North Carolina State Board of Health, and the North Carolina State Highway Patrol have been collaborating with the Department of Public Health and Preventive Medicine of Cornell University Medical College in a special study of the causes of injuries in passenger car accidents. This study, known as Automotive Crash Injury Research, is designed to collect statistical data on the specific causes of injury to the occupants of passenger cars involved in accidents. Although a pilot study of injury causes in fatal accidents only had previously been done in Indiana, the State of North Carolina was the first to undertake a study of *all* injury producing accidents.

Precedents set in North Carolina led to the expansion of this program to include 10 additional states. Data produced by the interstate program have made it possible for automotive engineers to design and test realistic safety features aimed specifically at reducing needless and excessive injury. The safety design improvements which are present in many 1956 automobiles are a direct reflection of the pioneering research effort initiated by North Carolina doctors and State Highway Patrolmen.

On September 27, 1953, the Executive Council of the Medical Society of the State of North Carolina voted unanimously to endorse the study and, subsequently, it was adopted as an official activity of the North Carolina State Board of Health and the North Carolina State Highway Patrol.

During the past two years the study has been functioning with the approval of local medical societies in selected sampling areas distributed throughout the state. For each occupant of a passenger car who was injured in an accident occurring in the sampling areas, the attending physician recorded on a special medical form provided by Cornell the extent and nature of all injuries. Completed medical reports were matched with information on the specific causes of the injuries, as well as accident and car damage de-

tails, recorded on related forms by the Highway Patrolmen investigating the accidents. Special photographs illustrating damage details and specific injury causes were also taken. Completed cases were then forwarded through the local health officer to the State Board of Health where they were reviewed for completeness before submission to Cornell for analysis and statistical use.

Plans for Continuing Study

Recently a decision was made by officials of the North Carolina State Board of Health and the North Carolina State Highway Patrol to continue the study for two more years. This extended study was officially endorsed by the Executive Council of the Medical Society of the State of North Carolina during its meeting on November 20, 1955. In addition, in order to permit evaluation of the engineering changes already made by the automotive industry in their efforts to reduce the injury potential of their cars, a special, limited study is being initiated to run concurrently with the regular program. This limited study will investigate rural accidents involving 1956 model passenger cars only, and will be extended over a wider area than that of the full study.

For the coming two-year period, the study has been planned as follows: During the first six months, the full scale all passenger car study will operate in Lincoln, Gaston, Person, Orange, and Durham counties. During the next six months, it will be moved to the following counties: Alleghany, Surry, Wilkes, Yadkin, Robeson, and Columbus. During the second year, the study will be held in Chatham, Moore, Lee, Northampton, Hertford, Halifax, and Bertie counties, for the first six months, while in the final six months period Davidson, Randolph, Beaufort, Hyde, Martin, Washington and Tyrrell counties will be active.

Areas in which the study of *new* cars will be carried on are as follows:

First Year

First Six Months Counties	Second Six Months Counties
Alleghany	Lincoln
Surry	Gaston
Stokes	Person
Wilkes	Orange
Yadkin	Durham
Forsyth	Stokes

Alexander
Iredell
Davie
Catawba
Rowan
Cabarrus
Mecklenburg
Granville
Vance
Warren
Wake
Franklin
Johnston
Wayne
Harnett
Sampson
Duplin
Cumberland
Robeson
Bladen
Pender
Columbus
Brunswick
Hanover

Forsyth
Alexander
Iredell
Davie
Catawba
Rowan
Cabarrus
Mecklenburg
Granville
Vance
Warren
Wake
Franklin
Johnston
Wayne
Harnett
Sampson
Duplin
Cumberland
Bladen
Pender
Brunswick
Hanover

Health Service. Additional funds for expansion were made available to Cornell on an unrestricted basis in the autumn of 1955 by the Ford Motor Company and the Chrysler Corporation.

Need for Physicians' Cooperation

Physicians actively cooperating in the study are urged to remember that for the purposes of this project recording of each injury, however slight, is important. It will be readily appreciated that a contused forehead caused by impact on an instrument panel knob in a 15 mile an hour collision might well be a severe concussion at 30 miles an hour or a fatal penetrating fracture at 55. Of great value also is the inclusion of the doctor's prognosis concerning injuries which might result in permanent disfigurement or disability. The Cornell forms are brief, generally requiring less than five minutes for completion.

In a recent meeting, Dr. R. Arnold Gris in the final six months period Davidson, ma of the American College of Surgeons, said, "If the safety devices automobile manufacturers are putting in cars this year are only 10 per cent effective, they will save more lives than would polio vaccine if it were 100 per cent effective."

In this effort to reduce the epidemic proportions of our present day disease of impact injury, doctors are urged wholeheartedly to cooperate.

Second Year

First Six Months

Counties

Rockingham
Caswell
Guilford
Alamance
Davidson
Randolph
Stanly
Montgomery
Union
Anson
Richmond
Scotland
Gates
Chowan
Perquimans
Pasquotank
Camden
Currituck
Nash
Edgecomb
Martin
Washington
Tyrrell
Dare
Wilson
Pitt
Beaufort
Hyde
Greene
Lenoir
Craven
Pamlico
Jones
Onslow
Carteret

Second Six Months

Counties

Chatham
Moore
Lee
Rockingham
Caswell
Guilford
Alamance
Stanly
Montgomery
Union
Anson
Richmond
Scotland
Northampton
Hertford
Bertie
Halifax
Gates
Chowan
Perquimans
Pasquotank
Camden
Currituck
Nash
Edgecombe
Dare
Wilson
Pitt
Greene
Lenoir
Craven
Pamlico
Jones
Onslow
Carteret

Sponsoring Agencies

The Cornell Automotive Crash Injury Research project which coordinates the interstate program is sponsored by the Armed Forces Epidemiological Board through its Commission on Accidental Trauma with funds supplied through the Office of the Surgeon General of the Army, and is co-sponsored by the United States Public

Classified Advertisements

GENERAL PRACTITIONERS — Immediate openings available with Medical Group. Excellent educational opportunities; paid annual vacation and study period. Net starting income \$12,000 to \$15,000 depending upon training and experience. No investment required. Reply Box 406, California, Pa.

FOR SALE — Continental Pioneer Radiographic Fluoroscopic unit, 100 M. A. Bucky, Double Focal spot, originally bought new in May 1952, for \$4000. Will sell for \$2500. Mrs. James Berry, 735 Sylvan Road, Winston-Salem, N. C. Apply direct.

BULLETIN BOARD

Preliminary Program
of the
ONE HUNDRED SECOND ANNUAL SESSION
The Medical Society
of the
State of North Carolina

April 29, 30, May 1 and 2, 1956

PINEHURST, NORTH CAROLINA

Headquarters—Carolina Hotel

PROGRAM OF THE MEDICAL SOCIETY

SUNDAY, APRIL 29, 1956

- 10:00 A.M.—Executive Council Meeting (Small Card Room)
- 11:00 A.M.—Registration opens (Audio-Visual participants and officials)
- 2 to 3 P.M.—AUDIO-VISUAL PROGRAM—J. Leonard Goldner, M.D., Chairman, Duke University School of Medicine Surgical Repair of Complete Uterine Prolapse (Vaginal Hysterectomy with Anterior and Posterior Repair) (color, sound—Davis & Geck)
C. H. Mauzy, M.D., Discussor, Bowman Gray School of Medicine A Normal Labor and Delivery (sound-color) by John Ashe, Jr., M.D., Charlotte
(Large Card Room)
(For additional audio-visual programs, see Monday, April 30th)
- 3 to 5 P.M.—POSTGRADUATE INSTRUCTIONAL COURSE IN SURGERY
Clinical Applications of Physiology of the Gastro-Intestinal Tract
W. Walton Kitchin, Chairman, Clinton Surgical Physiology of the Stomach and Duodenum—Lawrence Owsley, M.D., Boone
Surgical Physiology of the Small and Large Bowel—W. W. Kitchin, M.D., Clinton
Surgical Physiology of the Liver and Biliary Tract—Howard Starling, M.D., Winston-Salem
Surgical Physiology of the Pancreas—James Davis, M.D., Durham
(Large Card Room)
- 8:00 P.M.—Memorial Service, Charles H. Pugh, M.D., Chairman, Presiding.
Choral Selections: Flora McDonald College Glee Club, Red Springs, Mr. Lawrence Skinner, Director
An Address:
C. Excell Rozzell, D.D.S.
High Point College
High Point
(The Assembly Room)

MONDAY, APRIL 30, 1956

- 8:30 A.M.—General Registration opens, Booth (Front Lobby) (Society Members, Delegates, Officials, Guests, Auxiliary members, Technical & Scientific Exhibitors will register in this area.)
- 9:00 A.M.—NORTH CAROLINA BOARD OF MEDICAL EXAMINERS
Meets for business and hearings (Small Card Room)
- 9:00 A.M.—Technical Exhibits open (West porches)
- 9:00 A.M.—POST GRADUATE INSTRUCTION COURSE
Audio-Visual Program
(Continuation from April 29 above)
(Large Card Room)
- 9 to 10 A.M.—AUDIO-VISUAL PROGRAM (continued from above)
Some Aspects of Accessible Cancer—Cervix and Uterus (A.M.A. Film Library—sound)—E. C. Garber, Jr., M.D., Discussor, Fayetteville
Pudendal Nerve Block with Intracaine and Demerol (Squibb—sound), by L. M. Schadel, Jr., Ft. Lauderdale, Florida
Diagnostic and Treatment Problems Associated with Fibromyomata Uteri—R. T. Parker, M.D., Duke University School of Medicine
- 10 to 12 Noon—POSTGRADUATE INSTRUCTIONAL COURSE IN GENITO-URINARY DISEASES—Amos N. Johnson, M.D., Chairman, Garland
Diagnosis and Diagnostic Procedures of Prostatism—F. K. Garvey, M.D., Bowman Gray School of Medicine
Questions and Answers—P. L. Bunce, M.D., Moderator, University of North Carolina School of Medicine
Diagnosis of Carcinoma of the Vagina and Cervix with Demonstrations of Obtaining Papanicolaou's Smears and Biopsies—Robert N. Creadick, M.D., Duke University School of Medicine
Questions and Answers—Robert A. Ross, M.D., University of North Carolina School of Medicine
- 10:00 A.M.—SPECIAL MEETING HOUSE OF DELEGATES—G. Westbrook Murphy, M.D., Speaker, Presiding (Ball Room)
- 1:00 P.M.—Scientific Exhibits open (East porches and Lounges)
- 1:30 P.M.—POSTGRADUATE INSTRUCTION COURSE
Audio Visual Program (Large Card Room)
- 1:30 to 3 P.M.—Anatomy of the Female Perineum (sound—color) by Joseph Markee, Ph.D., Duke University School of Medicine
Radical Operation for Cancer of the Cervix: Wertheim's Operation (Davis and Geck, silent)—Jesse Caldwell, Discussor, Gastonia
Abdominal Complete Oophorectomy with Right Salpingo-oophorectomy (Davis and Geck—sound)
- 3 to 5 P.M.—POSTGRADUATE INSTRUCTIONAL COURSE IN TRAUMA—Everett I. Bugg, Jr., M.D., Chairman, Watts Hospital and Duke University School of Medicine
Care of the Patient with Acute Brain Injury—Eben Alexander, Jr., M.D., Bowman Gray School of Medicine

Care of the Patient with Fracture of the Pelvis—Ira Rapp, M.D., Charlotte
 Urological Complications Associated with Pelvic Fractures—Jack Hughes, M.D., Durham
 The Use of Whole Blood and Fluid in the Acutely Injured — Ivan Brown, M.D., Duke University School of Medicine

The Section on Radiology has arranged a panel on the acute abdomen which is to be presented as a part of their sectional program. Likewise the Section on Obstetrics and Gynecology has arranged a panel on the indications for Cesarean Section which is to be presented as a part of their sectional program. Your attention is called to each of these Sections in the printed annual program.

Lenox D. Baker, M.D., Chairman
 Postgraduate Instructional and Audio-visual Program

- 2:00 P.M.—First Meeting of the Annual Meeting THE HOUSE OF DELEGATES of the Medical Society—G. Westbrook Murphy, M.D., Speaker, Presiding (Agenda will be available) (The Ball Room)
 Invocation: Rev. William Sidney Golden, Presbyterian Church, Carthage
- 5:00 P.M.—Intermission of House of Delegates
- 5:00 P.M.—Social Hour Medical College of Virginia Alumni Association (The Pine Room)
- 5:20 P.M.—Scientific and Technical Exhibits close (Exhibits under supervision of official watchman)
- 5:30 P.M.—Social Hour and Entertainment of Medical Society for Technical and Scientific Exhibitors
 (The Pinehurst Country Club)
 Entertainer: Mr. George Tonak, Pianist-Comedian, New York City
 Courtesy of: Homemakers' Products Corporation
 Introduction by: President James P. Rousseau, M.D.
- 6:00 P.M.—Dinner, Medical College of Virginia and North Carolina Medical College (Combined), (Crystal Room)
- 8:00 P.M.—HOUSE OF DELEGATES of Medical Society reconvenes (The Ball Room)
- 9:00 P.M.—Medical Auxiliary Bingo Party (Pine Room)

TUESDAY, MAY 1, 1956

BREAKFAST FOR OFFICERS OF STATE AND COUNTY SOCIETIES

- 7:30 A.M.—All County Society Officers, Committee members of the State Society and State Society Officials will assemble in Crystal Room (prior to opening of general dining room)
- 7:45 A.M.—Breakfast for Officers (Crystal Room)
 President James P. Rousseau, M.D., presiding
- 8:20 A.M.—An Address: "Some Christian Responsibilities of Physicians," R. Wallace Teed, Ann Arbor, Michigan
- 8:50 A.M.—Announcements
- 8:55 A.M.—Adjournment
- 8:30 A.M.—Registration opens, booth (Front Lobby)
- 8:45 A.M.—Scientific and Technical Exhibits open (East and West porches)

FIRST GENERAL SESSION

TUESDAY, MAY 1, 1956

(Ball Room)

- 9:10 A.M.—Call to Order, Millard D. Hill, M.D., Chairman, Committee on Arrangements
 Invocation: Rev. Adam W. Craig, Episcopal Church, Pinehurst
 Announcements: Secretary Hill
 Recognition and presentation of President James P. Rousseau, M.D., Winston-Salem
- 9:15 A.M.—Recognition of Distinguished guests
- 9:20 A.M.—Report of Committee on Awards:
 Roland T. Bellows, M.D., Chairman, Charlotte
- (a) Confirmation and showing of 1955 Audio-Visual Award subject
- (b) Recognition and presentation Moore County and the Cooper Memorial Awardees
 Associates, Committee on Scientific Awards
 William S. Doshier, M.D., Wilmington
 Charles M. Norfleet, Jr., M.D., Winston-Salem
 Jesse P. Chapman, M.D., Asheville
 Ernest Craig, M.D., Chapel Hill ✓
 George J. Baylin, M.D., Durham
 George W. James, M.D., Winston-Salem
 William O. Beavers, M.D., Greensboro
 Emory Hunt, Consultant, Chapel Hill ✓
- 9:50 A.M.—Cancer of the Colon
 Nathan Womack, M.D., Chapel Hill ✓
 (From the Section on Surgery)
- 10:10 A.M.—An Address: "A Small Leak Will Sink A Great Ship" Benjamin Franklin G. Westbrook Murphy, M.D., Past-President and Speaker of the House of Delegates, Asheville (By Invitation)
- 10:30 A.M.—An Address
 Denton A. Cooley, M.D., Cardio-Vascular Surgeon, Methodist Hospital, Houston, Texas
- 10:55 A.M.—An Address: "The Physician Citizen" Elmer Hess, M.D., President of THE AMERICAN MEDICAL ASSOCIATION
- 11:20 A.M.—Gastric Ulcer—a Continuing Problem
 Warren W. Furey, M.D., President, American College of Radiology, Chicago
- 11:45 A.M.—An Address: "Medicine in a Changing World"
 David B. Allman, M.D., F.A.C.S., Chairman, Committee on Legislation, The American Medical Association, Atlantic City
- 12:05 P.M.—The Annual Address of the President James P. Rousseau, M.D., President, The Medical Society of the State of North Carolina, Winston-Salem
- 12:20 P.M.—Announcements
 Presentation of High School Essay
- 12:30 P.M.—Adjournment

ALUMNI LUNCHEONS

Tuesday, May 1, 1956, 1:00 P.M.

Duke University Medical School Alumni Luncheon, T. L. Peele, M.D., Secretary, Durham—Pine-needles—1:00 P.M. Tuesday, May 1—Complete Luncheon Fee: \$3.00. Notify the Secretary at Box 3811, Duke Hospital, Durham

University of Maryland Medical School Alumni Association, Luncheon, (The Stag Room) (Limited seating to 26)

Jefferson Medical College Alumni Association
Luncheon (The Crystal Room)

2:00 P.M.—Second Special Meeting of the House
of Delegates (Ball Room)

SECTION ON SURGERY
Tuesday, May 1, 2:30 P.M.
(Ball Room)

James F. Marshall, M.D., Chairman, Winston-Salem
PANEL:

- Surgery of the Colon and Rectum
Moderator: Russell O. Lyday, M.D., Greensboro.
Inflammatory Lesions of The Colon
R. W. Postlethwait, M.D., Durham.
Polyps Of The Colon and Rectum
Richard T. Myers, M.D., Winston-Salem.
Carcinoma of The Colon
George T. Wood, M.D., High Point.
Carcinoma Of The Rectum
F. M. Simmons Patterson, M.D., New Bern.
Cancer Of The Colon
Nathan Womack, M.D., Chapel Hill. ✓
(Before First General Session)

SECTION ON OBSTETRICS AND
GYNECOLOGY

Tuesday, May 1, 2:30 P.M.
(Large Card Room)

James F. Donnelly, M.D., Chairman, Raleigh
PANEL DISCUSSION

Subject: Indications for Cesarean Section
Participants

- Lewis S. Rathbun, M.D., Asheville
W. W. Kitchin, M.D., Clinton
Claude McNeill, M.D., Elkin
Thad B. Wester, M.D., Lumberton
Bayard Carter, M.D., Durham
R. A. Ross, M.D., Chapel Hill ✓
Frank R. Lock, M.D., Winston-Salem
Discussions (General Participation)

SECTION ON NEUROLOGY AND PSYCHIATRY

Tuesday, May 1, 2:30 P.M.
(Village Chapel)

Thomas W. Farmer, M.D., Chairman, Chapel Hill ✓

A. Panel Discussion

Subject: The Therapeutic and Toxic Effects of
Tranquilizing Drugs

Moderator: David W. Abse, M.D., Chapel Hill ✓

Participants:

- Neurophysiological Aspects—William P. Wilson, M.D., Durham
Psychological Aspects—David W. Abse, M.D., ✓
(with W. Grant Dahlstrom, Ph.D.)
Medical Aspects—Dan A. Martin, M.D. ✓
(Discussion will follow panel presentation)

Intermission

B. Neurologic Aspects of Arsenic Poisoning in
North Carolina

- Robert W. Willett, M.D., Raleigh ✓
Albert Heyman, M.D., Chapel Hill ✓
John B. Pfeiffer, Jr., M.D., Durham
(Laboratory Studies done by: Haywood M. Taylor, Ph.D.)
(Discussion)

C. Psychotherapy and the Family Physician

- Eugene A. Hargrove, M.D., Chapel Hill ✓
Christopher T. Bever, M.D., Chapel Hill ✓
(Discussion)

SECTION ON RADIOLOGY

Tuesday, May 1, 2:30 P.M.
(Pine Room)

Thomas G. Thurston, M.D., Chairman, Salisbury

A. Panel Discussion

Subject: Acute Abdomen

Roentgen Diagnostic Aids in the Acute Abdomen
I. Meschan, M.D., Professor of Radiology,
Bowman Gray School of Medicine, Winston-Salem

Gallbladder Diagnosis in the Acute Abdomen
Robert J. Reeves, M.D., Professor of Radiology,
Duke University School of Medicine, Durham

Examination of the Stomach and Duodenum
Warren W. Furey, M.D., President of American
College of Radiology, Professor of Radiology
of Loyola University Hospital, Chicago, Ill.

Intermission

B. Panel Discussion of Acute Abdominal Problems

Ernest H. Wood, M.D., Professor of Radiology,
University of North Carolina Medical School, Chapel Hill ✓

George J. Baylin, M.D., Professor of Radiology,
Duke University, Durham

W. Edward Chamberlain, M.D., Professor of Radiology,
Temple University School of Medicine, Philadelphia, Pa., President of American
Roentgen Ray Society

I. Meschan, M.D., Professor of Radiology,
Bowman Gray School of Medicine, Winston-Salem

Warren W. Furey, M.D., President of American
College of Radiology, Chicago, Illinois

Robert J. Reeves, M.D., Professor of Radiology,
Duke University School of Medicine, Durham

C. The Natural History of the Intervertebral Disc
Disease

W. Edward Chamberlain, M.D., Professor of Radiology,
Temple University School of Medicine, Philadelphia, Pa., President of American
Roentgen Ray Society
(Before First General Session)

SECTION ON PATHOLOGY

Tuesday, May 1, 2:30 P.M.
(Holly Inn Assembly Room)

John C. Reece, M.D., Chairman, Morganton
Treatment of Sick Cell Anemia with Anti-Coagulants

Robert Klein, M.D., Bowman Gray School of
Medicine, Winston-Salem, North Carolina

The Anterior Choroidal Artery Syndrome

Ivan Lacy Holleman, Jr., M.D.

Martin G. Netsky, M.D.

C. H. Davis, M.D.

Bowman Gray School of Medicine, Winston-Salem, N. C.

The New Medical Examiner Law

Kenneth M. Brinkhous, M.D., Professor of Pathology,
U.N.C. Medical School, Chapel Hill, North Carolina ✓

(Before the Second General Session)

5:45 P.M.—Exhibits close

PRESIDENT'S DINNER

Tuesday, May 1, 1956
(Main Dining Room)

7:00 P.M.—Banquet

Toastmaster: Fred K. Garvey, M.D.,
Winston-Salem

Invocation: Rev. Thomas A. Fraser,
Jr., Rector, St. Paul's Episcopal
Church, Winston-Salem

- 7:50 P.M.—Presentation of Guests
Recognition of Joseph J. Combs, M.D.,
President, Federation of State Medical
Examiner Boards of the United
States
- 8:00 P.M.—Presentation of President's Jewel
Fred C. Hubbard, M.D., North Wilkes-
boro
- 8:10 P.M.—Installation of President-Elect, Donald
B. Koonce, M.D., Wilmington
Administration of the authorized Oath
of Office by President James P. Rous-
seau, M.D.
An Address
Dr. Donald B. Koonce, M.D., Presi-
dent
- 8:30 P.M.—Banquet Entertainment
- 9:15 P.M.—Adjournment

SECOND GENERAL SESSION

Wednesday, May 2, 1956
(Ball Room)

- 9:00 A.M.—Convening of the Session
Edwards W. Schoenheit, M.D., First
Vice President
Announcements—
- 9:05 A.M.—The New Medical Examiner Law
Kenneth M. Brinkhous, M.D., Profes-
sor of Pathology, U. N. C. Medical
School, Chapel Hill
- 9:25 A.M.—The General Medical Clinic of the
North Carolina Memorial Hospital:
"Teaching and Service Function"
Kerr L. White, M.D., Chapel Hill
(From Section on Practice of Medi-
cine)
- 9:45 A.M.—The Motivation of a Physician
Ralph O. Rychener, M.D., Chairman
Optometric Relations Committee, Sec-
tion on Ophthalmology of A.M.A.
- 10:05 A.M.—An Address: "Problems Facing Medi-
cine Today"
George F. Lull, M.D., Secretary and
General Manager, The AMERICAN
MEDICAL ASSOCIATION, Chicago
- 10:25 A.M.—Occupational Health and the General
Practitioner—Robert A. Kehoe, M.D.,
Professor of Industrial Health, College
of Medicine, University of Cincinnati,
Cincinnati, Ohio
(From Section on Public Health and
Education)
- 10:45 A.M.—Anesthesia Evolving—Wesley Bourne,
M.D., Emeritus Professor of Anesthe-
sia, McGill University, Montreal, Can-
ada
(From Section on Anesthesia)
- 11:05 A.M.—The Natural History of Intervertebral
Disc Disease—W. Edward Chamber-
lain, M.D., Professor of Radiology,
Temple University School of Medicine,
Philadelphia, Pa., President of Ameri-
can Roentgen Ray Society
(From Section on Radiology of Tues-
day)

CONJOINT SESSION

Wednesday, May 2, 1956
(Ball Room)

- 11:25 A.M.—G. Grady Dixon, M.D., President of
the North Carolina State Board of
Health, will preside over this meeting
of the Medical Society of the State of
North Carolina and the State Board
of Health

- RECONVENING SECOND GENERAL SESSION
- 11:50 A.M.—Election of North Carolina Board of
Medical Examiners
- 12:20 P.M.—Award of Golf Prizes and Exhibit At-
tendance Prizes
- 12:35 P.M.—Adjournment

ALUMNI LUNCHEONS

Wednesday, May 2, 1956, 1:00 P.M.

The University of Pennsylvania Medi-
cal School Alumni Association Lunch-
eon (The Crystal Room)

Wednesday, May 2, 1956

- 12:20 P.M.—Medical Advisory Board, N. C. Com-
mission for the Blind (Stag Room)

SECOND MEETING OF THE HOUSE OF DELEGATES

Wednesday, May 2, 2:30 P.M.
(Regular)
(Small Card Room)
(Agenda will be available)

SECTION ON PRACTICE OF MEDICINE AND SURGERY

Wednesday, May 2, 2:30 P.M.
(Ball Room)

- William P. Kavanagh, M.D., Chairman, Cooleemee
Anesthesia For Acute Abdominal Surgery—A
Poor Risk.
- John C. Montgomery, M.D., Chief Anesthe-
siologist, Charlotte Memorial Hospital, Char-
lotte
- Obstetric Care and Its Relation to Surgery
Robert A. Ross, M.D., Professor of Obstetrics
and Gynecology, University of North Carolina
School of Medicine, Chapel Hill
- Status of Prostatectomy—A Report of 450 Ret-
ropublic Operations
John Frazier, M.D., Wayne Cline, M.D., and
Norris Erb, M.D., Frazier Urological Clinic,
Salisbury
- Congenital Anomalies and Their Relation to
General Medicine
Warren Andrew, M.D., Professor of Anatomy,
Bowman Gray School of Medicine, Winston-
Salem
- Athletic Injuries
Lenox D. Baker, M.D., and Robert Mus-
grave, M.D., Department of Orthopedics, Duke
University School of Medicine, Durham

SECTION ON PRACTICE OF MEDICINE

Wednesday, May 2, 2:30 P.M.
(Large Card Room)

- K. D. Weeks, M.D., Chairman, Rocky Mount
Acute Arterial Occlusion
John M. Douglas, M.D., Charlotte
- Selection of Patients For Mitral Commissuro-
tomy
Lewis B. Bolin, M.D., and C. Glenn Sawyer,
M.D., Winston-Salem
- Lupus Erythematosus—Its Recognition and Pre-
sent Day Concepts of Etiology and Management
John W. Allgood, M.D., Greensboro
- Kyphoscoliotic Heart Disease
James W. Woods, M.D., Chapel Hill
- Newer Developments In Atherosclerosis and
Coronary Heart Disease
Harvey Estes, M.D., Durham
- The General Medical Clinic of the North Caro-
lina Memorial Hospital: "Teaching and Service
Function"
Kerr L. White, M.D., Chapel Hill
(Before Second General Session)

SECTION ON OPHTHALMOLOGY AND OTOLARYNGOLOGY

Wednesday, May 2, 2:30 P.M.
(Pine Room)

- John S. Gordon, M.D., Chairman, Charlotte
- Peri-orbital Diseases
Fredrick Harbert, M.D., Jefferson Medical
College, Philadelphia
- Combined General and Local Anesthesia for
Adult Tonsillectomy
Charles S. Sale, M.D., Wilmington
- The Influence of "Adrenosem" on Post-Opera-
tive Hemorrhage in Cataract Surgery
Dubose Egleston, M.D., McPherson Hospital,
Durham
- External Unibo Blebs Non-inflammatory Lipoid
Vesicles of the Tympanic Membrane
B. W. Armstrong, M.D., Charlotte EEN&T
Hospital, Charlotte
- Lipids in One Thousand Cataracts and Keratitis
Cases
L. B. Holt, M.D., Winston-Salem
- Rhinoplasty Surgery
Carl N. Patterson, M.D., Durham

SECTION ON PEDIATRICS

Wednesday, May 2, 2:30 P.M.
(Village Chapel)

- Paul F. Maness, M.D., Chairman, Burlington
Premature Infants
Dan Boyette, M.D., Ahoskie
- Problems in The Management of Childhood Dia-
betes
Weston M. Kelsey, M.D., Winston-Salem
- Management of the Dehydrated Infant
Nelson K. Ordway, M.D., Chapel Hill
- Thyroid Problems in Children
Judson J. Van Wyk, M.D., Chapel Hill
- Immunization of Allergic Children with Parti-
cular Reference to Eczema Vaccinatum
Benjamin A. Johnson, M.D., and Susan Dees,
M.D., Durham, presented by Dr. Johnson

SECTION ON PUBLIC HEALTH AND EDUCATION

Wednesday, May 2, 2:30 P.M.
(Holly Inn Assembly Room)

- A. Hughes Bryan, M.D., Chairman, Chapel Hill
Newer Methods of Treating Tuberculosis and
the Need for Community Assistance in Home
Care
William M. Peck, M.D., Associate Superin-
tendent—Medical Director, North Carolina
Sanatorium, McCain
- Role of the Health Department in Home Care of
Tuberculosis
O. David Garvin, M.D., Health Officer,
Orange-Person-Chatham-Lee Counties, Chapel
Hill
- Value of Practical Health Education in Getting
People to Consult the Doctor
L. E. Kling, M.D., Health Officer, Beaufort-
Pamlico Counties, Washington
- Occupational Health and the General Practi-
tioner
Robert A. Kehoe, M.D., Professor of Indus-
trial Health, College of Medicine, University
of Cincinnati, Cincinnati, Ohio
(Before Second General Sessions)

SECTION ON ANESTHESIA

Wednesday, May 2, 2:30 P.M.
(Dutch Room)

- Leonard Nanzetta, M.D., Chairman, Winston-Salem
Regional Anesthesia of the Lower Extremity
Leroy Crandell, M.D., Winston-Salem
- Anesthetic Deaths in North Carolina
David A. Davis, M.D., Chapel Hill
- Anesthesia for the Poor Risk Patient—Factors
of Importance
C. R. Stephen, M.D., Durham
- Anesthesia Evolving
Wesley Bourne, M.D., Emeritus Professor of
Anesthesia, McGill University, Montreal, Can-
ada
(Before Second General Sessions)

THIRD GENERAL SESSION

Wednesday, May 2, 1956
(Ball Room)

- President Donald B. Koonce, M.D., Wilmington,
presiding
- 5:00 P.M.—Presentation of Fifty Year Certificates
5:15 P.M.—Report of the House of Delegates
5:20 P.M.—Unfinished Business
5:25 P.M.—New Business
5:30 P.M.—Installation of officers elected by 1956
House of Delegates
5:40 P.M.—Remarks by the President
5:45 P.M.—Adjournment *Sine die*

THIRTY-THIRD ANNUAL MEETING

OF THE

AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

PROGRAM

Sunday, April 29, 1956

- 8:00 P.M.—Memorial Service for departed Medi-
cal Society and Auxiliary members.
(Ball Room).
Mrs. C. T. Grier, Memorial Committee
Chairman
Monday, April 30, 1956

9:00 A.M.
to

- 1:00 P.M.—Golf Tournament—Pinehurst Coun-
try Club. **Doctors' Wives** only.
Valuable prizes. Mrs. Michael Pishko,
Chairman.

- 10:30 A.M.—Finance Committee—Dutch Room
11:30 A.M.—Executive Committee—Dutch Room
2:30 P.M.—Executive Board Meeting—Village
Chapel
- 9:00 P.M.—Bingo Party—Pine Room—One dollar
for the evening.
Valuable prizes. Any money left after
expenses will be used for our Sana-
toria Bed Projects. **MEN WELCOME!**
Mrs. George Heinitsh, Chairman
Tuesday, May 1, 1956

- 9:00 A.M.—Annual Meeting of the House of Dele-
gates (Open).
County Presidents, Councilors and
Committee Chairmen are urged to be
present. (Pine Room)

- 10:45 A.M.—Intermission — Coca-Colas will be served. Mrs. J. C. Grier, Chairman, Mrs. P. P. Green, Co-Chairman
- 11:00 A.M.—Annual General Meeting
- 12:00 Noon—Installation of Officers
- 12:15 P.M.—Adjournment
- 1:00 P.M.—Executive Board Luncheon—Pinehurst Country Club—Honoring Mrs. Paul C. Craig, Wyomissing, Pennsylvania, 1st Vice-President of the Auxiliary to the American Medical Association, and Mrs. John J. O'Connell, St. Louis, Missouri, President of the Auxiliary to the Southern Medical Association.
- 3:00 P.M.—Fashion Show and Tea—Pinehurst Country Club—Fashions by Kay's of Rockingham. Tickets may be purchased at the Country Club on admission—price fifty cents. Refreshments compliments of the Medical Society of the State of North Carolina. Buses will leave the Carolina Hotel at 2:30 P.M. Mrs. Ralph Garrison, Mrs. J. S. Hiatt, and Mrs. W. F. Hollister, Chairmen.
- 7:00 P.M.—President's Dinner—Carolina Hotel Dining Room
President's Ball—Ball Room—Entertainment—Floor Show—following the dinner.
- Wednesday, May 2, 1956
- 9:00 A.M.—Woman's Auxiliary Breakfast—Honoring special guests. All Auxiliary Board Members and County Presidents for 1956 and 1957 are urged to attend. (Crystal Room).
- 10:00 A.M.—Bridge Party—Large Card Room—Valuable prizes
Mrs. R. M. McMillan, Chairman.

COMING MEETINGS

North Carolina Tuberculosis Association, Annual Meeting—Sir Walter Hotel, Raleigh, April 9-10.

American Association of the History of Medicine, Twenty-Ninth Annual Meeting—Duke University and the University of North Carolina, April 19-21.

Medical Society of the State of North Carolina, One Hundred and Second Annual Session—Pinehurst, April 29—May 2.

Duke University Medical Alumnae Luncheon during the State Meeting, Pinehurst, May 1.

North Carolina State Board of Medical Examiners meeting to interview candidates for licensure by endorsement—Pinehurst, April 30.

North Carolina Public Health Association, Annual Meeting—Charlotte, May 31-June 1.

International Academy of Proctology, Eighth Annual Convention—Drake Hotel, Chicago, April 23-26.

First Annual Conference on Diet and Dental Health—University of Alabama Medical Center, Birmingham, April 23-24.

International College of Surgeons, Southeastern Regional Meeting, Read House, Chattanooga, Tennessee, April 30-May 1.

Third National Cancer Conference, sponsored by the American Cancer Society and the National

Cancer Institute of the Public Health Service—Detroit, Michigan, June 4-6.

American College of Chest Physicians, Twenty-Second Annual Meeting—Hotel Sherman, Chicago, June 6-10.

American Medical Association, One Hundred and Fifth Annual Meeting—Chicago, June 11-15.

American Institute of Dental Medicine—El Mirador, Palm Springs, California, November 4-8.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Dr. Ashton B. Morrison, associate in pathology at Duke University Medical School, has just been named recipient of a \$30,000 five-year Markle Foundation Scholarship.

Dr. Morrison is one of 23 men throughout the United States and Canada so honored, and he thus becomes the eighth Duke medical faculty member to receive such an award since the John and Mary R. Markle Foundation was established in 1947. The foundation seeks to promote better trained physicians by encouraging able young men to stay in academic medicine and research.

Dr. Morrison, former director of medical studies at Corpus Christi College, University of Cambridge, England, is the author of several scientific articles dealing with the fundamental chemical mechanisms underlying disease reactions.

His grant will be paid, \$6,000 annually for five years, to Duke University, which will administer the funds.

A native of Lurgan, County Armagh, Ireland, Dr. Morrison received the M.B. and Ph.D. degrees at Queens University, Belfast, where he later served as assistant lecturer.

He received the M.D. degree at Duke while a Rockefeller medical student during World War II, and he worked in the Duke Department of Pathology before returning to Belfast.

During 1952 he was a Queen's University McKay Wilson Traveling Fellow in Germany.

Former Duke recipients of Markle awards include Dr. Ivan W. Brown, Jr., recently honored by membership in the Society of University Physicians; Dr. George W. Schwert, associate professor of biochemistry; Dr. Samuel P. Martin, who will leave here later this month to begin his new duties as professor and chairman of the Department of Medicine at the University of Florida Medical School, Gainesville.

Duke men still working under Markle grants include Dr. William deMaria, pediatrician; Dr. William G. Anyan, surgeon; Dr. Wayland E. Hull, physiologist; and Dr. William S. Lynn, internist.

The late Dr. Seymour Korkes, associate professor of biochemistry from 1953 until his death last December, was a Markle Scholar at New York University before joining the Duke faculty.

A new, simplified "artificial lung" which may be one of the most important steps yet taken for major heart surgery was reported by a team of Duke University surgeons to the Society of University Surgeons meeting in Indianapolis in February.

The new lung, consisting of a series of plastic bags, provides new possibilities for heart surgery by completely by-passing the heart for much longer periods than any other previously reported device, Dr. Ivan W. Brown, Jr., told the Society.

During operation, (while the heart is by-passed) blood is pumped from the body by a special electric finger pump into the "lung" where carbon dioxide is removed, oxygen is added, and the blood is pumped back into the circulatory system. Meanwhile, a flow of blood through the coronary arteries "feeds" the heart muscle sufficiently to keep it alive—but does not interfere with surgery.

Up to now surgeons have been able to operate on the heart for only comparatively short periods of time. The Duke team of Dr. Brown, Dr. Will C. Sealy, Dr. Glenn Young, Wilmer C. Hewitt, Jr., and Dr. Jerome S. Harris said they have operated on the heart for as long as two and a half hours with the new lung. It might be that the new lung will virtually eliminate time as a major factor in future heart surgery, the doctors added.

In addition, the time element and the fact that surgeons can work on the open heart provides the means for correcting deformities within the heart, such as abnormal openings between chambers of the heart, they said.

The inexpensive, throw-away lung apparatus developed by the team overcomes a major problem of blood clotting and "blood damage" encountered in most other devices (because of blood being altered during contact with surfaces of the materials used). A special film coating in the Duke apparatus prevents "frothing." The surface of the plastic bags and tubes also prevents any damage to various elements of the blood.

The new lung also solves the problem of maintaining the proper mixture of oxygen and carbon dioxide in the blood flowing through the circulatory system. The lung removes carbon dioxide and adds oxygen to blood flowing out from the body to the "lung." Two operating room assistants "monitor" the blood flow by weighing the plastic bags on scales before the blood is pumped back into the body.

In attacking the problem, Dr. Brown said, "We considered the following requirements to be essential: "freedom from dependence on mechanical or electronic devices; simplicity and hand operation; freedom from bacterial contamination; smooth, non-wetting surfaces throughout, preventing as far as possible damage to various blood elements; rapid and efficient enough to provide sufficient flow rates; and low cost and expendability.

"From laboratory and limited clinical experience, we feel that the blood-gas exchanger (artificial lung) fills these requirements and offers certain other advantages not inherent in most oxygenators," he said.

POSTGRADUATE MEDICAL SEMINAR CRUISE

Dr. W. C. Davison, dean of the Duke School of Medicine, and Dr. William McNeal Nicholson, professor of medicine and director of postgraduate education have announced that a Postgraduate Medical Seminar Cruise, which will last 18 days will sail from New York, October 27.

As was the case last year, when Duke's initial cruise was held between Wilmington and the West Indies, South America and the Canal Zone, the 1956 cruise will be conducted by the Allen Travel Service, Inc., 550 Fifth Avenue, New York 36, New York, through which reservations can be made.

The cruise, according to Drs. Davison and Nicholson, will be made aboard the 24,000-ton S. S. Nassau, which is completely air-conditioned. The itinerary will include Madeira, Casablanca, Cadiz, Palermo, Naples and Rome. Extensions may be made for visiting other European points of interest and the cost of attending the medical cruise may be deducted when computing federal income taxes. Those wishing to attend are privileged to begin making their reservations immediately.

There will be 25 hours of formal teaching toward the 150 hours of postgraduate study required every three years, Drs. Davison and Nicholson announced. They also said that there will be no registration fee and that further medical details may be secured from Dr. Nicholson, Duke's director of Postgraduate education.

Making the initial announcement of this extensive cruise, Duke Medical School officials also announced the faculty, as follows: Dr. Wilburt Cornell Davison, James B. Duke professor of pediatrics and dean of the School of Medicine; Dr. William McNeal Nicholson, professor of medicine and director of postgraduate education; Dr. Lenox D. Baker, professor of orthopedic surgery; Dr. Leslie B. Hohman, professor of psychiatry, and Dr. Edward S. Orgain, professor of medicine. Dr. Baker, whose name appears in the above list, recently became a member of the North Carolina State Board of Health, having been appointed by Governor Hodges.

The course of study just announced, includes more than 20 subjects which will be explained to physicians making application for the cruise. It was emphasized here that, although the seminar cruise will be sponsored by Duke, it will be open to qualified physicians anywhere. Bookings may be made not only by physicians and members of their families, but by any who desire to make the cruise.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA MEDICAL SCHOOL

The third annual Seminar on Occupational Health was held on February 9 and 10 at North Carolina Memorial Hospital for physicians and industrialists from North Carolina and other southeastern states.

Some 17 top representatives from health and industrial fields served as symposium speakers, according to Dr. William P. Richardson, assistant dean for continuation education of the University of North Carolina School of Medicine.

The seminar was sponsored jointly by the School of Medicine, the Occupational Health Committee of the State Medical Society, and the Liberty Mutual Insurance Co., "in recognition of the need for and interest in the development of more adequate industrial health services in the rapidly expanding industries" of the southeast. Financial assistance to the Seminar was also given by the North Carolina Medical Foundation.

* * *

Robert A. Farrell of Troy, a second-year medical student at the University of North Carolina, has been awarded a predoctoral fellowship in the Department of Pathology for the coming school year.

The award was made by the Arthritis and Rheumatism Foundation to aid in the study of enzyme systems concerned with hemophilic arthritis.

Farrell will carry out research on this problem under the direction of Dr. Kenneth M. Brinkhous, head of the Pathology Department, and Dr. Robert H. Wagner, research associate.

The son of Dr. and Mrs. William I. Farrell of Troy, he did his undergraduate work at the University in Chapel Hill, where he holds membership in Phi Beta Kappa, Phi Eta Sigma, and Delta Phi Alpha.

The regular monthly Medical School Research Conference, conducted primarily for the faculty of the Division of Health Affairs but open also to other faculty members and interested persons, was held Thursday night, February 23 at 7:30 p.m. in Room 324 of the Medical Building at the University of North Carolina in Chapel Hill.

Dr. J. A. Green, assistant professor of anatomy, presented summaries of "Studies of Mouse Ovarian Neoplasma" as the first feature. "Physiological Considerations in the Growth of Thyroid Cancer" were discussed by Dr. C. O. Thomas, Jr., associate professor of surgery.

Effort to discover "A promoting factor" in the growth of such cancer, according to Dr. Thomas, led to examination of the thyrotropic hormone of the anterior pituitary. By suppressing the blood level of this hormone with large amounts of desiccated throid, the hypothesis regarding the causal relationship of the thyrotropic hormone was confirmed. "Following withdrawal of the promoting factor in patients" by means of "suppressing the

blood level of the thyrotropic hormone, a lack of progression of neoplastic growth occurred in some instances and in others, actual regression was noted."

Concluding the conference, Dr. Kenneth Sugioka, assistant professor of surgery, analyzed the "Present Status of Oximetry in Cardio-respiratory Physiology." His presentation had to do with methods of measuring the amount of oxygen in the blood as related to circulation and cardiac output. In this connection he commented on the performance of both cuvette type and vivo oximeters.

* * *

Two new appointments in the Department of Medicine of the University of North Carolina Medical School have been announced by Dean W. Reece Berryhill and Dr. Charles H. Burnett, department chairmen.

Dr. W. Geoffrey Wysor and Dr. Sarah Lou Warren have been named clinical assistant and Fellow, respectively. Dr. Warren also has an appointment as Fellow in the Department of Preventive Medicine.

Coming to the University of North Carolina from private practice in South Boston, Virginia, Dr. Wysor holds his B.A. and M.D. degrees from the University of Virginia. He was an intern and junior assistant resident at Grace-New Haven Community Hospital, New Haven, Connecticut.

Dr. Wysor completed his assistant residency and residency at the Medical College of Virginia in Richmond, later joining the faculty there as assistant in medicine and as instructor. His year and a half of private practice followed.

Dr. Warren, who did undergraduate work at the University in Chapel Hill and medical studies at the Medical College of Virginia, comes to the University of North Carolina from Alaska, where she was a medical officer with the Alaska Native Service Hospital in Anchorage. She is a native of Prospect Hill, North Carolina.

* * *

The library of the late Dr. Foy Roberson has become a part of the library of the Division of Health Affairs at the University of North Carolina.

Dr. Roberson, a University alumnus and long a prominent surgeon of Durham and active in medical affairs of the state, left the volumes, chiefly on works of a surgical nature, in his will. The bequest includes 272 volumes.

Dr. Roberson, who died in November, served for many years as a trustee of the University of North Carolina, and was a member of the University's Athletic Council. As a student at the University, he was captain of the 1905 football team.

After graduation from the University he attended Jefferson Medical College in Philadelphia. He began his surgical practice in Durham in 1912.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Dr. Eugene A. Conrad has joined the faculty of The Bowman Gray School of Medicine as instructor in physiology and pharmacology. Dr. Conrad has recently completed the requirements for the Ph.D. degree in pharmacology at Vanderbilt University School of Medicine. He is a native of Massachusetts and was graduated with the B.S. degree from Holy Cross College in 1950. In 1952 he received the M.S. degree from the University of New Hampshire. Dr. Conrad has been actively engaged in research on the relative changes of intestinal bacteria.

* * *

Dean C. C. Carpenter recently announced the appointment of Dr. J. Maxwell Little as registrar. Dr. Little, professor of pharmacology and associate professor of physiology, has been serving as chairman of the committee on admissions. In an effort to gain continuity in evaluation of student performance, Dr. Little will now coordinate the activities of the committee on admissions and faculty committees concerned with student scholarship.

* * *

Plans have been completed for the alumni day activities on April 4. An afternoon symposium on hypertension will be presented in the amphitheater beginning at 2:00 p.m.:

Genetics of Hypertension—Dr. C. Nash Herndon, Professor of Medical Genetics.

Pathology of Hypertensive Cardiovascular Disease—Dr. Robert E. Klein, Instructor in Pathology

Pathologic Physiology of Hypertension—Dr. Merrill P. Spencer, Assistant Professor of Physiology and Pharmacology

Hypertension in Infancy and Childhood — Dr. Weston M. Kelsey, Professor and Director of the Department of Pediatrics

Hypertension in Pregnancy—Dr. Frank R. Lock, Professor and Director of Department of Obstetrics-Gynecology

Pharmacology of Hypotensive Drugs—Dr. Harold D. Green, Professor and Director of Department of Physiology and Pharmacology

Evaluation and Management of Hypertensive Patients—Dr. Ernest H. Yount, Jr., Professor and Director of Department of Internal Medicine

Surgical Treatment of Hypertension—Dr. Felda Hightower, Associate Professor of Surgery

The symposium will be followed by a social hour and banquet at the Hotel Robert E. Lee.

* * *

At the March 15 Heart Symposium in Lumberton, Dr. Harold D. Green, professor of physiology and pharmacology, presented a paper entitled "Diagnosis and treatment of peripheral vascular diseases." He attended the meeting of the Academy of General Practice March 19-22, where he presented his exhibit "Pharmacology of Antihypertensive Drugs."

Dr. Martin G. Netsky, professor of neuropathology and associate professor of neurology, participated in the two-day neurology seminar at the Veterans Administration Hospital in Salisbury March 20-22. He presented a paper "The effect of Ionizing Radiation on the Human Brain, and on Human and Experimental Brain Tumors," as well as a clinico-pathologic conference.

* * *

Dr. David Cayer, professor of gastroenterology, participated in the Fourth Annual Program in General Medicine held at the University of North Carolina on March 8. The program was designed to cover the more common and important liver conditions encountered in general practice, and Dr. Cayer presented a paper "Jaundice—An Evaluation of Readily Available Diagnostic Procedures." He was also a participant in the panel discussion on "Gastro-intestinal Bleeding in Patients with Cirrhosis of the Liver."

FORSYTH COUNTY CANCER SYMPOSIUM

The Forsyth County Cancer Symposium held its fifth annual program on March 29, in the Robert E. Lee Hotel Ballroom in Winston-Salem, North Carolina.

This year the Symposium was concerned with tumors of the urinary tract, including the kidney, bladder, prostate and external genitalia, as it also relates to other systems.

NORTH CAROLINA SOCIETY OF CRIPPLED CHILDREN AND ADULTS

More than 2,000 North Carolina crippled children and 419 crippled adults were aided last year by Easter Seal Societies in 93 communities of the state in which \$148,000.00 was raised in the annual Easter Seal Appeal, it was announced recently by Albin Pikutis, executive director of the North Carolina Society for Crippled Children and Adults, Inc.

Of the \$148,561.80 raised by volunteer groups over the state, 55 per cent was retained in the local communities for treatment, medical care and similar programs for the crippled. Ten per cent went to the National Society. The remainder was used for service programs supported and developed at the state headquarters.

In his annual report just distributed to officials of 93 local societies, Pikutis disclosed that approximately four out of every five dollars spent in the state for handicapped was used for the care and treatment, including payment for hospital bills of crippled children, for x-rays, wheelchairs, artificial limbs, speech clinics, transportation to hospitals, recreation and education. Funds for education supported pre-school centers for very young children with handicaps, homebound handicapped children, home-to-school communication systems and special schools. The speech therapy program at Duke Hospital was mentioned especially for its program of rehabilitation of children and adults with speech defects.

Dr. Leslie B. Hohman of Duke University, state president of the Society, called Director Pikutis' report "a document which testifies to the great heart of North Carolina people in their help for those unfortunate children and others who are crippled." Dr. Hohman said the assistance that has been given by North Carolinians to support the program in aid to the handicapped and the broad new plans for increasing services, such as the new summer camp for crippled children and the itinerant physical therapy program, is a good omen for success again this year in offering help to the handicapped.

* * *

Besides the main program of care and treatment for crippled children in North Carolina, a program of special education in three institutions of higher learning in the state is being supported by the North Carolina Society for Crippled Children and Adults, it was announced by Dr. Leslie B. Hohman, president of the society.

Grants totalling \$2,000 will be made available to North Carolina College at Durham, East Carolina College, and Western Carolina College for the 1956 summer Workshops in Special Education.

A special grant has been made available to Duke Hospital for the speech therapy program. Speech therapy under this program is available to any child or adult who is handicapped and a resident of North Carolina. There is no charge for treatment.

Dr. Hohman stated that the state Society will expand its facilities for campers this summer. Instead of one camp, near Chapel Hill, there will be a second camp near Mount Mitchell.

NORTH CAROLINA HEART ASSOCIATION

Mrs. Mattie Hux of Roanoke Rapids recently came back for a checkup at Memorial Hospital, where her badly damaged heart had undergone surgery, and where she had delivered robust Ernest Henry Hux two months previously, and was told by her doctors that both of them were doing fine.

In years past, a patient with the kind of crippled heart Mrs. Hux had, would have been warned against pregnancy and, if it had occurred, doctors would have performed a therapeutic abortion on the mother, since it was felt that neither mother nor child could have survived. Mrs. Hux is testimony to the fact that modern medicine can help a woman with a sick heart become strong enough to go through a normal pregnancy and delivery.

* * *

Puffy eyes, swollen ankles, a general feeling of body heaviness—all these common signs of edema, or excess liquid in the tissues, may indicate heart or kidney trouble, or a combination of both. Where does the liquid come from? What has it to do with the heart and kidneys? And how are these organs

so related that a breakdown in one almost invariably leads to a disturbance of the other?

A pair of medical scientists at the University of North Carolina are seeking the answers to these and other questions in a study that requires as much painstaking delicacy as engraving the Lord's Prayer on a pinhead. For two years, Dr. Carl Gottschalk and his assistant, Margaret Mylle, have been measuring the pressure in both the blood capillaries of the kidney and the tubules where urine is formed in a series of laboratory rats. The capillaries and tubules with which they work are far too small to be seen with the naked eye.

It is Dr. Gottschalk's purpose to find out more about what takes place between the kidney capillaries and tubules, how urine is formed, and how the proper amounts of chemicals and water are left behind in the blood. This is a basic research project, which holds significance for the better treatment and prevention of many kidney and heart ailments.

The study is being financed in part by a grant from the Edgecombe-Nash Heart Association, chapter of the North Carolina Heart Association, which is an affiliate of the American Heart Association.

BLADEN COUNTY HEALTH ASSOCIATION

A program of general health improvement on Bladen County people was initiated by a group of Bladen County citizens who met recently at the hospital and formally organized the Bladen County Health Association. Ellis Clark, Elizabethtown, was elected president.

James A. Love, Jr., Clarkton, who had served as temporary chairman of the group at its first meeting two weeks ago, was named vice president; and W. S. Beacham, of Elizabethtown, administrator of the Bladen County Hospital, secretary.

James H. Clark, Elizabethtown, was named as Consultant to the Association. Mr. Clark is Chairman of the North Carolina Medical Care Commission.

As their first project members of the Association voted unanimously to cooperate with the Duke Endowment and the Durham Blue Cross Plan, Hospital Care Association, in conducting a county-wide survey to determine the extent of prepaid hospital insurance coverage. Cost of the local program will be underwritten one-third by the Duke Endowment and two-thirds by Hospital Care Association as an experiment to find the best method of extending Blue Cross prepaid hospital service to rural people.

Bladen will be the first of two counties in which the experiment will be conducted. The other county has not yet been determined.

NEWS NOTES FROM THE NORTH CAROLINA TUBERCULOSIS ASSOCIATION

The 1956 annual meeting of the North Carolina Tuberculosis Association to be held April 9-10 at the Sir Walter Hotel in Raleigh will be the occasion for its fiftieth anniversary celebration.

The program as planned by the Fiftieth Anniversary Program Planning Committee will provide an opportunity for an appraisal of the past, present and future in tuberculosis control.

Kemp D. Battle of Rocky Mount who has been active in local, state and national tuberculosis association work will make the keynote address. His subject will be "Historical Highlights of Fifty Years of Organized Tuberculosis Work in North Carolina."

"The Challenge of the Future" will be the theme of a symposium at which tuberculin testing, health education, rehabilitation, public relations and research will be discussed by outstanding authorities.

A panel representing private physicians, welfare departments, health departments, tuberculosis associations, tuberculosis hospitals, and the Division of Vocational Rehabilitation will air the responsibilities of each in the total tuberculosis control program. The theme for this session will be "Teamwork—The Gateway To Progress."

"The Trudeau Societies" of North Carolina, Virginia and West Virginia will hold their fourth Tuberculosis Case Conference on March 18-20 at the Hotel Roanoke, Roanoke, Virginia.

Dr. David T. Smith was nominated for re-election as NCTA Representative Director on the Board of Directors of the National TB Association, and Dr. Stuart Willis was recommended for re-election as Director-at-Large from North Carolina at a meeting of the NCTA Executive Committee held in Raleigh January 11, 1956

EDGECOMBE-NASH MEDICAL SOCIETY

The February meeting of the Edgcombe-Nash Medical Society was held in conjunction with the Fourth District Medical Society in Rocky Mount on February 15. Dr. W. W. Shingleton led a discussion on "Bleeding Peptic Ulcer."

At the March meeting Bob Sheridan presented a film from the American Cancer Society on "Tumors of Children."

NEWS NOTES

Dr. James P. Rousseau of Winston-Salem was elected vice president of the American College of Radiology at the annual meeting of the college held last month in Chicago. He succeeds Dr. Bernard P. Widmann, of Philadelphia, Pennsylvania.

The College of Radiology is the spokesman for all of organized radiology in the United States.

Dr. Arthur R. Summerlin of Raleigh was inducted into fellowship in the Academy of Obstetrics and Gynecology at the annual business meeting during the fourth annual clinical meeting of the organization at the Conrad Hilton Hotel, Chicago, December 12-14, 1955.

INTERNATIONAL COLLEGE OF SURGEONS

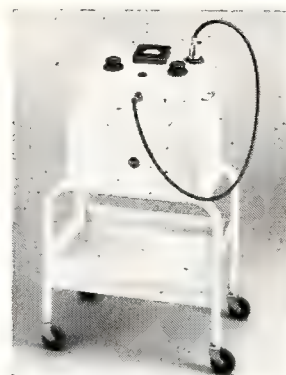
The United States Section of the International College of Surgeons will hold a Southeastern regional meeting in the Read House, Chattanooga, April 30 and May 1.

The program will include the presentation of 17 scientific papers, three panels, dinner and luncheon with speakers, and exhibits.

Dr. William G. Stephenson of Chattanooga, United States Section regent for Tennessee and general chairman of the meeting, will preside at the opening, when Mayor P. R. Olgiati will welcome the surgeons.

Dr. Max Thorek of Chicago, founder and secretary general of the International College of Surgeons, and Dr. Ross T. McIntire, Chicago, executive director, will be the banquet speakers in the evening of April 30. The luncheon that day will be addressed by Dr. Arnold S. Jackson, Madison, Wisconsin, president of the United States Section, and Dr. McIntire.

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CONVENTION ON CLINICAL ENDOCRINOLOGY

A convention on clinical endocrinology was held in Atlanta, Georgia, at the Georgia Hotel, March 19 and 20. The speaker was Dr. Philip K. Bondy, associate professor of internal medicine, Yale University School of Medicine, and staff member of the New Haven Hospital.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

All Aboard For AMA's Annual Meeting In Chicago

Plans are rapidly taking shape for the A.M.A.'s one hundred and fifth meeting June 11-15 in Chicago. A.M.A. has lined up nearly five full days of lectures, scientific and technical exhibits, color television and motion picture presentations to give physicians a good "short course" in postgraduate medical education. Between 12,000 and 15,000 physicians are expected to attend the convention which will center its activities at Navy Pier, Northwestern University, and near north side hotels. Headquarters for the House of Delegates will be at the Palmer House.

Some 350 technical exhibits and more than 300 scientific exhibits will be on display all week for the benefit of physicians and guests. The exhibit hall will open "for doctors only" probably on Wednesday and Thursday mornings.

A few outstanding scientific features already

scheduled include: fracture and fresh pathology exhibits; physical examinations for physicians; exhibit-symposiums on traffic accidents and arthritis and rheumatism; special exhibits on cardiovascular diseases and pulmonary function tests.

Physicians should begin now to make plans to attend this worthwhile medical meeting. More details will be published in the *Journal of the American Medical Association*.

* * *

AMA Film Library Grows

Reporting the biggest year of its existence, the A.M.A.'s Committee on Medical Motion Pictures distributed more than 3,000 films last year to medical societies, medical schools, hospitals, and other medical groups. Each year the committee adds many films to its growing library. Newest addition is a film entitled, "The Doctor Examines Your Heart," which will be of particular value to the physician speaking before high school health classes or service clubs. Running time for this black and white film is 11 minutes.

* * *

A.M.A. Cooperates In Network TV Shows

Information on network television programs produced in cooperation with the American Medical Association recently has been released. Three "March of Medicine" programs — presented by Smith, Kline and French Laboratories and A.M.A.

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MARK A. GRIFFIN, SR., M.D.

MARK A. GRIFFIN, JR., M.D.

For rates and further information write

APPALACHIAN HALL, ASHEVILLE, N. C.

—will be aired over the NBC-TV network this spring. A report on geriatrics, featuring clinical work at Jackson Memorial Hospital, Miami, and the health education program at St. Petersburg, Florida, will be presented late in March. Although a topic has not been selected as yet for the May program, the final show in the 1956 spring series will feature highlights of A.M.A.'s Annual Meeting in Chicago during the week of June 11.

The other TV series entitled, "Medical Horizons," has been presented weekly by Ciba and A.M.A. over the ABC-TV network. Final program in this series included a report on aviation medicine research at Wright-Patterson Air Base, Ohio, on March 5. This popular half-hour telecast probably will be continued next fall with newsworthy developments from hospitals, medical schools and research institutions throughout the country.

* * *

A.M.A. Issues Booklets On Job Absence

Keeping Joe Worker healthy and on the job is a major problem facing both physicians and industrial leaders. Two new publications dealing with the problem of work absence have been prepared by the A.M.A.'s Committee on Medical Care for Industrial Workers—a joint committee of the Councils on Medical Service and Industrial Health. The first—a reprint from the January, 1956, issue of A.M.A. *Archives of Industrial Health*—was prepared for the Committee by Mark S. Blumberg, M.D., and James A. Coffin of the USPHS's Occupational Health Program. Entitled "A Syllabus on Work Absence," this booklet contains basic information for evaluating much of the data already published in this field.

The second pamphlet, "Company Medical Programs and Work Absence—10 Case Studies," discusses the medical programs of 10 companies and how they deal with non-occupational job absence.

Single copies of these publications are available free of charge from the A.M.A.

* * *

Insurance Booklets

The ninth revision of the brochure entitled, "Voluntary Prepayment Medical Benefit Plans" and its supplementary "Charts and Graphs" recently were released by the A.M.A.'s Council on Medical Service. Single copies of the brochure and supplement may be obtained from the A.M.A.'s Council. In addition, a limited number of back issues of the brochure are available.

Also of interest to medical societies is the annual publication of the Health Insurance Council, "The Extent of Voluntary Health Insurance Coverage in the United States." This booklet contains enrollment figures for all types of insurance programs. Copies may be secured from any of the following H.I.C. offices: 60 John Street, New York 38; 488 Madison Avenue, New York 22, or 208 La Salle Street, Chicago 4.

National Conference On Rural Health

The Eleventh National Conference on Rural Health, featuring the theme "Your Doctor and You," was held at the Multnomah Hotel, Portland, Oregon, March 8-10.

Dr. F. S. Crockett, Lafayette, Indiana, co-founder of the American Medical Association's Council on Rural Health, delivered the keynote speech on this topic at 2:30 p.m. Thursday, March 8.

* * *

AMA Plans New Health Exhibits

Scheduled for release this spring are two new A.M.A. health exhibits depicting different aspects of the human body. Developed by the Bureau of Exhibits, both displays feature life size, three-dimensional models of parts of the body.

The first, entitled "We See," will be released April 1. Charts and diagrams show construction of the normal eye in comparison to a camera, and various panels deal with nearsightedness, farsightedness, and color blindness. A special feature of this exhibit will give viewers an opportunity to check themselves on whether or not they have any eye deficiencies.

The second exhibit, "We hear," stresses the mechanics of hearing, showing how sound enters the ear and is carried to the brain. Also featured are panels on motion sickness, quackery in the field and the mechanics of hearing aids. This exhibit will be available about May 1.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The twenty-second annual meeting of the American College of Chest Physicians will be held at the Hotel Sherman, Chicago, Illinois, June 6 through 10, 1956. The scientific program will include prominent speakers on all aspects of heart and lung diseases. In addition to formal presentations, there will be a number of symposiums, round table luncheon discussions, seminars, and motion pictures.

The Fireside Conferences, which were inaugurated at the annual meeting of the college in 1955 and proved to be so popular, will be repeated. At this session, more than 50 experts will be present to lead the discussions on many subjects of current interest in the specialty of diseases of the chest.

Examinations for Fellowship will be held on Thursday, June 7. On Saturday evening, June 9, more than 150 physicians will receive their certificates of Fellowship at the annual Convocation, which will precede the Presidents' Banquet.

All interested physicians are cordially invited to attend the twenty-second annual meeting of the college; there is no registration fee. Copies of the program may be obtained by writing to the Executive Offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

JOINT BLOOD COUNCIL

Dr. Leonard W. Larson, Bismark, North Dakota, president of the Joint Blood Council, has made public a letter from President Eisenhower encouraging the newly formed national organization to develop a coordinated nationwide blood service, for peacetime as well as in emergencies.

President Eisenhower praised the program and said that its five member organizations "in voluntarily forming a council to coordinate blood banking facilities have made an important contribution to the welfare of our country."

Member institutions of the Council are the American National Red Cross, the American Association of Blood Banks, the American Hospital Association, the American Medical Association, and the American Society of Clinical Pathologists.

AMERICAN COLLEGE OF SURGEONS

A properly functioning registry of cancer patients is a requirement for approval of a hospital's cancer program by the American College of Surgeons under new regulations which are now effective, the Committee on Cancer of the College announced recently.

The college program considers a hospital's cancer activities only, and is entirely separate from the Joint Commission on Accreditation of Hospitals, which accredits hospitals on the basis of detailed studies of medical and administrative activities, it was explained. The American College of Surgeons is one of five member organizations in the Joint Commission.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK

The one hundred and fiftieth anniversary of the founding of the Medical Society of the County of New York will be celebrated in sesquicentennial events in April 1956, according to Gerald D. Dorman, M.D., president of the society.

New York County, the Island of Manhattan, has the largest local medical society in the nation with 7,000 members. The Society was founded in 1806 when 102 physicians assembled on the steps of City Hall and publicly proclaimed the Society of physicians to exist. Its charter was then received from the State of New York. One of the forthcoming events of the Sesqui-Centennial will be to reenact this scene and rededicate the Society to the service of the citizens of New York.

William B. Rawls, M.D., a past-president of the Society, is general chairman of the anniversary event, which will be climaxed at a formal dinner for more than 1,000 persons at the Waldorf-Astoria Hotel on the evening of April 5, 1956.

THE AMERICAN ACADEMY OF GENERAL PRACTICE

An article in the February issue of GP magazine, the Academy's official monthly publication, states that, although 91 per cent of the doctors oppose compulsory coverage, 83 per cent approve a voluntary coverage plan.

Very few doctors retire at age 65. Many continue to work in order to maintain high health standards in their respective communities. These doctors, who would be required to contribute under the provisions of a compulsory coverage plan, would not be eligible to receive benefits unless they retire, limit their practice and keep their incomes under \$100 a month, or reach age 72.

In terms of life expectancy, few doctors would benefit from compulsory participation. Many would receive only a fraction of the total amount contributed. As one doctor pointed out, "You can make monthly payments for 40 years or more and never collect a dime. It's no bargain."

The doctors simultaneously endorsed a voluntary retirement income program, available to those who want it. Many felt there should be a direct relationship between the total amount paid in and benefits received. However, they point out that many excellent, private plans are already available and that the government might do well to stay out of the insurance business.

AMERICAN INSTITUTE OF DENTAL MEDICINE

The next annual meeting of the American Institute of Dental Medicine will take place at El Mirador, Palm Springs, California, November 4 to 8, 1956.

All Seminar lecturers will participate in a round table forum discussing the application of their subject to the practice of dental medicine. Because of the mounting interest in this annual meeting of the Institute, early registration is indicated. Applications and full information may be secured from the executive secretary, Miss Marion G. Lewis, 2240 Channing Way, Berkeley 4, California.

NATIONAL VITAMIN FOUNDATION, INC.

Reports on the latest knowledge of vitamin metabolism were made at a meeting of outstanding scientists at a symposium held in New York City in connection with the eleventh annual meeting of the National Vitamin Foundation, on March 6.

The meeting was the thirteenth in a series of semi-annual scientific sessions supported by The National Vitamin Foundation and conducted in cooperation with the country's leading universities and medical schools. The National Vitamin Foundation, Inc., is a non-profit organization which conducts a continuing program of scientific research in the fields of vitamins and nutrition.

THE NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

Easter Seals will go into more than 33 million American homes during the 1956 Easter Seal campaign, it is estimated by the National Society for Crippled Children and Adults, the Easter Seal Society.

The annual nationwide appeal, which marks 35 years of service, will open Saturday, March 10, and continue through Saturday, April 10. This year's campaign starts nine days later and extends nine days after Easter to avoid conflict with other fund-raising campaigns also scheduled at that time.

Millions of appeal letters and sheets of brightly colored Easter Seals will be sent through the mails throughout the campaign. These Seals, which have become an Easter tradition, finance hundreds of direct services to crippled children and adults in each of the 48 states, District of Columbia, Alaska, Hawaii, and Puerto Rico.

More than 90 per cent of the funds contributed during the annual Easter Seal campaign remain in the area collected for local services to the crippled. The remainder helps support a nationwide program of education, direct services and research including the Easter Seal Research Foundation.

GUILD OF PRESCRIPTION OPTICIANS OF AMERICA

Eighteen fellowships for residents in ophthalmology will be established over the next three years by the Guild of Prescription Opticians of America, it has been announced by the Guild's president, Galen B. Kilburn, of Atlanta, Georgia.

The purpose of the plan, is to encourage outstanding young physicians to become residents in ophthalmology, the medical specialty dealing with eye care, by providing financial help during all three required years of residency.

Each of the fellowships which are being granted on a regional basis, will provide a total stipend of \$1,800, payable in monthly installments over the three-year period of residency.

Applications and information may be secured from the Guild of Prescription Opticians of America, Inc., 110 East 23rd Street, New York 10, New York.

BLUE CROSS COMMISSION

The largest providers of protection against the costs of hospital care in North America today are Blue Cross Plans.

Enrollment in the 86 Approved Blue Cross Plans, located in the United States, Canada and Puerto Rico, was 50,179,264 persons as of September 30,

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AND

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1955, according to a report issued today by the Blue Cross Commission, Chicago.

Nearly one out of every three persons in the United States today is a Blue Cross member. In Canada, five Blue Cross Plans have enrolled 26 per cent of the combined population of eight provinces, the report stated.

U. S. DEPARTMENT HEALTH, EDUCATION, AND WELFARE

The United States Public Health Service this week announced the appointment of 124 physicians, nurses, sanitary engineers, dentists, and pharmacists to the inactive reserve component of its commissioned officer corps.

Officers of the Commissioned Reserve are held in reserve for emergency service and trained to serve in critical situations affecting the health and well-being of large numbers of people. Such emergencies might involve the devastation of cities, extensive illness and death from man-made or naturally occurring disease outbreaks, or the disruption of community life caused by hurricanes, floods, earthquakes, and other widespread natural disasters.

These officers will serve in the capacities for which their professional training and experience have fitted them. They will be called out principally to reinforce the staffs of official State and local health agencies and to augment the Public Health Service operating staff.

The following list contains the names, rank, addresses, educational and professional background, and professional affiliations of the newly appointed officers from North Carolina:

Dr. Edward A. Brecht, Jr., dean, School of Pharmacy, University of North Carolina, Chapel Hill. Appointed with the rank of Pharmacist (equivalent to Navy rank of Lieutenant Commander).

Mr. William W. Taylor, chief pharmacist, Chapel Hill. Appointed with the rank of Senior Assistant Pharmacist (equivalent to Navy rank of Lieutenant). Chief Pharmacist, North Carolina Memorial Hospital, and Instructor in Hospital Pharmacy at University of North Carolina School of Pharmacy.

Dr. Andrew S. Tegeris, intern, Duke Hospital, Durham. Appointed with the rank of Assistant Surgeon (equivalent to Navy rank of Lieutenant [jg].)

Mrs. Blanche L. Vincent, head nurse, North Carolina Memorial Hospital, Chapel Hill. Appointed with the rank of Senior Assistant Nurse Officer (equivalent to Navy rank of Lieutenant.)

* * *

Appointment of 10 members to the newly established National Advisory Allergy and Infectious Diseases Council was announced recently by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, U. S. Department of Health, Education, and Welfare.

The Council has been set up to facilitate activities of the new National Institute of Allergy and Infectious Diseases. This Institute, redesigned from the former National Microbiological Institute, has been established to provide for expanded studies on allergy and to meet the growing needs on infectious disease research. The Institute of Allergy and Infectious Diseases is one of the seven National Institutes of Health which comprise the principal research branch of the Public Health Service.

* * *

A 54-page monograph on the epidemiologic, medical, and experimental evidence on environmental substances either known or suspected to be responsible for respiratory cancer in man has been published by the Public Health Service of the Department of Health, Education, and Welfare. The title is "A Quest into the Environmental Causes of Cancer of the Lung," and the author is Dr. W. C. Hueper, head of the Environmental Cancer Section of the National Cancer Institute.

Copies are available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 45 cents. This is Public Health Monograph No. 36.

* * *

The Public Health Service awarded 3,036 research grants totaling \$36,522,408 between July 1, 1955, and January 1, 1956, from fiscal year 1956 funds appropriated to the National Institutes of Health, the PHS research bureau at Bethesda, Maryland. The grants will aid research in medical schools, hospitals, and other non-Federal institutions throughout the country.

Doctors Report On Insurance

To find out how physicians feel about health insurance, the A.M.A.'s Council on Medical Service recently compiled and published a detailed "Summary of Survey of Physicians' Attitudes Toward Voluntary Health Insurance." Through its Committee on Prepayment Medical and Hospital Service, the Council issued a 32-page report summarizing the responses of nearly 8,000 physicians to a comprehensive questionnaire covering various aspects of voluntary health insurance.

Here are some of the significant indications:

- * The majority of respondents felt that health insurance should be underwritten by all agencies on a competitive basis.
- * Over half expressed the opinion that the function of such programs was to provide financial assistance.
- * Over three-fourths of the respondents felt that insured patients should pay some portion of medical care costs in addition to the insurance.
- * Most believed insurance should attempt to cover only "a substantial portion" rather than the entire fee.

The Month in Washington

All too frequently overlooked in Congressional activity on health and related bills each year are the little publicized but highly important appropriations measures—without which no program of the federal government could move forward. The appropriations hearings in the House (where all money bills must originate) rarely get headlines; they are conducted behind closed doors. Weeks and some times months later, the hearings are published, but by then the bill supplying money for an agency has been reported to the House.

It is only when the measure gets to the Senate that private groups and individuals are heard—by then in open sessions. Closed House sessions are not new. That is the way it has been done ever since Congress set up a separate committee on appropriations back in 1865.

The importance of appropriations in running the federal government was clearly illustrated when the President submitted to Congress his 1,272-page budget message in which he sought \$65.9 billion for all federal programs for the fiscal year beginning July 1.

While there was no over-all total of projected spending by all the agencies in the health field, the budget requests for the Department of Health, Education, and Welfare showed a sharply upward trend. And if certain new legislation is voted on this session—like the projected five-year program of construction grants for medical schools and private laboratory facilities—the total figure for subsequent years is likely to be even higher.

On the medical school-laboratory construction bill, the President asked Congress for \$40 million for the first year (estimated cost over five years is \$250 million). Constructed grants, which would have to be matched on a 50-50 basis, would be available for private medical schools as well as non-federal laboratories conducting research into a wide range of crippling diseases.

The budget message also calls for another \$30 million in outright grants, to the states to help them in financing poliomyelitis vaccination programs, the same amount ap-

propriated by Congress last session. The administration in a separate request asked for extension of the polio law, from February 15, 1956, to June 30, 1957, and both the House and Senate with only brief debate voted the 17-month extension. Since only half of last year's \$30 million was spent up to the February 15 expiration date of the original act, there was no rush for Congress to act on the new account.

Other new spending asked by the administration, contingent, of course, on enabling legislation, includes \$10 million for initial capitalization of mortgage loan guarantees for health facilities; \$5 million for graduate and practical nurse and professional health personnel training, \$3 million for water pollution grants; \$1.5 million for mental health expansion programs; and \$1 million for sickness and disability surveys in the United States.

If Congress approves the requests, virtually all segments of the Department of HEW will have more money to spend than in this fiscal year. None would benefit more, however, than the medical research arm of government, the National Institutes of Health. The total sought for the seven institutes is 28 per cent more than estimated spending this year. Here are some examples: National Cancer Institute, \$32,437,000, up 29 per cent; National Heart Institute, \$22,106,000, up 17 per cent; and the National Institute of Allergy and Infectious Diseases (formerly the National Microbiological Institute), \$9,799,000, a 26 per cent increase.

The President requested \$130 million for the Hill-Burton hospital-clinic construction program which will be 10 years old this August. In this connection Congress has been asked to extend the act for two years beyond next year, and action is expected this session.

Notes

After a study of possibilities in the peaceful uses of atomic energy, a panel has recommended, among other things, that the United States encourage states and private organizations to take full advantages of the opportunities offered by radioactive material for medical research and treatment.

It now appears that an improved and more uniform program of medical care for service families will be adopted this session — possibly before this is published. One feature: A \$25 deductible charge in civilian hospitals, but with the government paying the full insurance premium, and a mandatory subsistence charge in military hospitals.

Making slower progress is the plan — under consideration for more than a year — for a health insurance program for United States civilian workers. Here the government would pay about half the cost.

Several committees are urging stricter penalties and other changes to bring the illicit narcotic traffic under better control; so far no suggestion of more controls over the medical profession in the handling of narcotics.

In Memoriam

Foy Roberson, M.D.

Foy Roberson was born at Chapel Hill, North Carolina on September 9, 1884. He spent his boyhood at Chapel Hill and took his premedical work at the University of North Carolina. He graduated at the Jefferson Medical College in Philadelphia in 1909. He married Helen Gribble December 10, 1914. He had three children: Clara Cunningham, Foy (Lt., U. S. Army Air Corps, killed December 21, 1941), and another daughter, Helen Cornelia. He began the practice of medicine in Durham in 1912.

His listing in "Who's Who in America" shows that the following honors came to him:

Surgeon to Watts Hospital, Durham, State Hospital for Insane, Raleigh; consulting surgeon Lincoln Hospital; local surgeon Southern Railway; member visiting staff Duke Hospital; member State Board of Medical Examiners of North Carolina (president 1930-31), chief surgeon staff Watts Hospital, Durham, North Carolina, 1937-42. Formerly chairman City and County Board of Health; ex-president Y.M.C.A.; trustee Lincoln Hospital. Appointed by Governor Gardner, member Board Directors State Prison of North Carolina; vice president Tri-State Medical Society, 1933-34; acting director University of North Carolina infirmary, 1933; member City Planning and Zoning Com., Durham. Chief of Medical Advisory Board Durham County, World War I. Formerly Col., M.C., Army of U. S.; chief Surgical Service, McCloskey General Hospital, Temple, Texas. Returned to civilian practice. Member Founders' Group American Board of Surgery. Member National

Subsidiary Board Medical Examiners. Fellow American College Surgeons, Southern Surgical Association (vice president); member A.M.A., Durham-Orange Medical Society, Kappa Alpha; alumni representative, University of North Carolina Athletic Council 10 years. Trustee University of North Carolina (eight-year term).

No obituary of Foy Roberson would be complete without saying something about the University of North Carolina. One could not say that it was his last love, but it was undoubtedly his first. The things that he did for the University of North Carolina should be placed on a pedestal with some of his other great achievements, but the listing of these things we will leave to the historian. However, it should be said here that he will long be remembered and should be long revered by this great institution.

Foy Roberson was a man of rare medical judgment, and this judgment was backed by a thorough medical knowledge. He gave meticulous attention to details in medicine, and was one of the most skillful surgical diagnosticians that it has been my pleasure to know. He realized that on the medical stage the patient was always the "Hamlet" of the play and that nothing was too good for him. He always viewed his patient as a physiologic unit. He realized as few surgeons do that the future welfare of this patient requires the proper function of every organ in the body. But it suffices to say that he was an excellent doctor, and as such he did a great good for many people. The greatest good that Foy Roberson did should probably be measured in terms of his contribution to his profession. He came along at a time when medicine was in a transition period. Foy Roberson could really be called one of the first modern doctors of North Carolina. He headed a committee which transformed Watts Hospital into one of the best non-teaching hospitals in North Carolina, and he did his best to keep it so. In fact, one might say that he put quality into that institution.

He did many other things, as can be seen by a look at his list of achievements. He was undoubtedly one of the wheels in medical progress in North Carolina. As far as the progress of medicine in Durham goes, his efforts were in the main as free from the thought of self as one could wish. He loved Watts Hospital, and he loved medicine.

In describing Foy Roberson's efforts in the big advances of medicine, one could aptly use the words of Tennyson—

"Love took up the harp of life
And smote on all the chords with might,
Smote the chord of self that trembling
Passed in music out of sight."

W. Raney Stanford, M.D.

NORTH CAROLINA

Medical Journal



Vol. 17 No. 4
April, 1956

IN THIS ISSUE:

CARCINOMA OF THE LUNG — OTTO H. BRANTIGAN, M.D.

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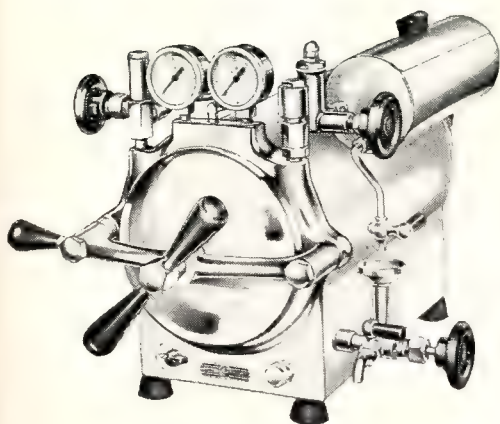
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NORTH CAROLINA MEDICAL JOURNAL

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Carcinoma of the Lung

OTTO C. BRANTIGAN, M.D.

BALTIMORE, MARYLAND

A study of 345 private patients with cancer of the lung from 1941 to 1954⁽¹⁾ offered convincing evidence that it was one of the most important health problems. It is a problem that will become greater in the future unless some method of control is developed. From this study and from a review of the literature it is evident that many questions concerning the disease remain unanswered. The most important are:

1. Has the incidence of the disease increased?
2. Is there a definite etiologic factor or agent?
3. Is there a practical method of making an early diagnosis?
4. Is the present method of treatment satisfactory?

Factors in Reported Increase in Incidence

It is difficult to believe that cancer of the lung was practically unknown in the year 1900. In 1912 Adler⁽²⁾ recorded a total of 374 cases, representing all the cases reported in the world literature to that date. As a student in medical school, I was taught that carcinoma of the lung was a rare, almost nonexistent disease. It is important to realize fully the difficulty in recognizing a condition that was thought not to exist. Many studies, both pathologic and clinical, have attempted to show a definite increase in the incidence of the disease, but it is questionable whether these studies truly represent the problem. The pathologists refer to their past autopsy records to show a greater incidence now as compared with reports made 20 or 30 years ago. They com-

pare the former, almost unrecognized carcinoma of the lung with easily identified, well known carcinomas of other organs. In many specimens of carcinoma of the lung, the secondary inflammatory reaction constitutes 90 per cent or more of the disease mass. Since it was generally believed that carcinoma of the lung did not exist, quite possibly a small neoplastic area could have been overlooked when overshadowed by a large area of secondary reaction. Since widespread metastasis is common in carcinoma of the lung, it is possible that such cases were thought to represent a primary cancer of some other organ. It would be interesting to compare primary carcinoma of the lung with some other disease thought to be rare 20 or 30 years ago—perhaps coronary artery disease, as an example. There are many indications that it was infrequently diagnosed at autopsy in those days. Today the pathologist may interpret a biopsy specimen as metastatic epidermoid carcinoma, most likely from the lung. In such cases the practice is to accept the diagnosis as bona fide carcinoma of the lung.

This paper is not intended to disparage the pathologists. I cannot forget the difficulty of recognizing the tibial collateral bursa of the knee joint, even though it was seen grossly and microscopically by many workers. Because it was considered to be nonexistent, in a hundred or more examinations of the dissected knee joint it was called an artefact.

From the clinical point of view the same circumstances existed. The first successful removal of a carcinoma of the lung was carried out by Graham⁽³⁾ in 1933. It is well to remember that the diagnosis made little difference before that time. In the present review there is included one patient who, in

From the Department of Surgery, Church Home and Hospital, Baltimore, Maryland.

Read before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 4, 1955.

1944, was studied in a Baltimore hospital, in a Boston hospital, and finally at the Mayo Clinic, only to return to Baltimore without a diagnosis. He had an inoperable carcinoma of the lung. It is certain that today any good general practitioner could make the diagnosis without difficulty. It is difficult to assert the year in which a solitary small round lesion revealed on a roentgenogram of the chest first aroused the suspicion of primary carcinoma of the lung, whereas today such a lesion will be excised because of the fear of carcinoma.

There is some doubt as to the year in which it was established that in many patients with carcinoma of the lung, the shadow seen on a chest roentgenogram represented secondary involvement, infection, atelectasis, abscess or some other condition, and not actually the neoplasm. Accordingly, the roentgenogram could show a clearing or a return to normal appearance, although the patient still had carcinoma of the lung.

Today cancer of the lung is a commonly recognized disease and a popular diagnosis; therefore constant vigilance must be exercised not to make it a convenience in doubtful cases. It should be borne in mind that the Bureau of Vital Statistics will not accept a death certificate without a definite diagnosis, even though there may be considerable doubt. It is this Bureau which has gathered the evidence that is often taken at face value. Breslow⁽⁴⁾ wrote: "One of the most striking disease phenomena of the past two decades is the sharp increase in deaths due to lung cancer. The age adjusted mortality for lung cancer in the United States climbed from 2.7 per 100,000 population in 1930 to 11.0 in 1948, a more than fourfold increase."

The aging population

The aging of the population in the United States is an important factor, since cancer of the lung is a disease of middle and later life rather than of the young. In 1900, individuals aged 65 years or older made up 4.1 per cent of the total population. In 1920, although the population had increased about 50,000,000, only 4.3 per cent were 65 years of age or older; however, in 1950, with an additional increase in population of about 50,000,000, the percentage of those 65 years of age or older had increased to 8 per

cent⁽⁵⁾; and it is predicted that by 1970 the figure will be about 16 per cent⁽⁶⁾.

The increase in population and in the number of people aged 65 years or older would account for a large increase in primary cancer of the lung. On this basis alone the rate of death from the disease doubled from 1930 to 1950, and can be expected to double again by 1970 unless some responsible factor is eliminated.

The recorded death rate per 100,000 for cancer of the lung in Baltimore City was 101 in 1940, 200 in 1950, and 240 in 1953⁽⁶⁾. At University Hospital in Baltimore during 1940 there were 9,289 general admissions, and cancer of the lung was diagnosed in 10 patients; in 1950 there were 11,772 general admissions, and the diagnosis of cancer of the lung was made in 43 instances. In 1953, however, there were 12,963 general admissions, and carcinoma of the lung was diagnosed in 72 patients. At Baltimore City Hospitals in 1920, with 1,591 general admissions, cancer of the lung was diagnosed in 2 instances; in 1940 the general admissions were 8,532 and cancer of the lung was diagnosed in 26 cases; in 1950 there were 7,322 admissions and cancer of the lung was diagnosed in 28 patients; in 1953 the admissions totaled 8,284 and lung cancer was the diagnosis in 27 instances. Perhaps the increase in the incidence can be attributed to better knowledge of the disease, more accurate diagnostic facilities, and an increase in the aging of the population. It is possible that the increase in population may play a part by making the disease more commonly recognized. If all other factors remain constant, the increased aging of the population alone will double the number of patients with primary cancer of the lung by 1970.

Etiology

If it is difficult to establish whether or not there is really an increase in the incidence or whether more patients are diagnosed because of better knowledge of the disease and the aging of the population, it becomes evident that no definite conclusions concerning the etiology can be reached, since no real facts are available. The cause of carcinoma is unknown regardless of its location in the body. This fact must not be forgotten. If there were a simple single

etiologic agent, it is likely that proof would be quickly established. Either there is not a single agent or that single agent is not now known. Many agents are thought to be co-carcinogenic. Reiman⁽⁷⁾ reported that more than 400 agents can produce cancer. There are well known factors that are thought to influence the occurrence of cancer.

Sex

Sex influences cancer. The best example is found in cancer of the breast, in which the ratio of men to women is 1.96⁽⁸⁾. Melanotic sarcoma is extremely rare before puberty and perhaps does not occur in the castrated male or female⁽⁹⁾. The relationship of sex to carcinoma of the lung is well known. Hueper⁽¹⁰⁾ wrote that this relationship varies according to geographic location. In Sweden the ratio of men to women is 2:1; while in certain sections of the United States it is 20:1. In the present study the ratio of men to women was 13:1.

Occupational carcinogens

Sunlight is regarded as the most potent of all occupational carcinogens⁽¹¹⁾. Its influence upon skin cancer is well known, even though the cure rate is nearly 100 per cent.

Tar products are noteworthy for their influence on the occurrence of carcinoma. One need only refer to the reports on chimney sweeps with their susceptibility to carcinoma of the scrotum. Tar products have produced skin cancer in experimental animals in many instances.

Chromate workers throughout the world acquire cancer of the lung more often than those in other occupations. There seems little doubt, according to Machle⁽¹²⁾ that the incidence of cancer of the lung in American chromate workers is 16 times higher than the anticipated rate for other individuals. Workers in mines where there are radioactive materials⁽¹³⁾ seemingly have cancer of the lung more often than the usual anticipated rate.

Printer's ink has been considered as a possible carcinogenic agent. Steinbrück^(14,15), in 1928, painted the backs of 16 mice with ordinary printer's ink, beginning twice a week and later changing to once a week for as long as seven months. Eight of the mice died before carcinoma developed, but of the remaining 8, all developed cancer of the skin with lymphatic metastasis and 5 had

cancer of the lung. Steinbrück considered it important to point out that food items are often packaged in printed paper. Ask-Upmark⁽¹⁶⁾ reported that in Sweden a study showed "... the occurrence of bronchial carcinoma in typographers exposed to printing ink would be about eighteen times as large as in the average population." There are perhaps no peoples in the world that use as much printed material as do the people in the United States. This presents the question as to whether there is a carcinogenic factor in mere exposure to printed materials.

Density of population

It would appear that the average number of dwellings per square mile influences the rate of cancer in the lung. A study of 10 Northeastern states showed 171.26 instances of carcinoma of the lung per 100,000, whereas in 10 southern states the incidence was 91.35 per 100,000. In the northeastern states the dwellings were 10 times closer together than those in the South. Benzpyrene is a carcinogenic agent found in domestic smoke⁽¹⁷⁾.

It is generally accepted that irritation of long duration may be a contributing factor in malignant degeneration. Carcinoma is seen in long continued unhealed ulcers from many causes, especially burns. Clark⁽¹⁸⁾ has shown that cancer may have a bacterial origin.

Cigarette Smoking and Lung Cancer

The products of cigarette smoke have produced cancer of the skin in mice, as shown by Wynder and Graham⁽¹⁹⁾; however, cancer of the lung has not been produced experimentally from cigarette or tobacco products. Essenberg⁽²⁰⁾ has perhaps come closest to accomplishing this feat in highly susceptible mice. For the most part it is agreed that cigarette smoking is an irritant to the tracheobronchial tree and lung.

The work of Hammond⁽²¹⁾ is impressive from the clinical point of view and leaves little room for doubt so far as etiology is concerned; however, it is much simpler to refute his statement concerning an increase in the incidence of the disease. He showed a 411 per cent increase in cancer of the lung and a 456 per cent increase in cigarette smoking from 1920 to 1953. In a survey of almost 190,000 cases he noticed a definite

increase in the death rate of cigarette smokers over nonsmokers of cigarettes. The increased death rate was caused by either carcinoma of the lung or coronary artery disease. Doll⁽²²⁾, in an exhaustive study, believed there was some association between cigarette smoking and cancer of the lung, but no specific agent in tobacco has been found responsible. It should be remembered that pipe smoking has long been suspected as an etiologic agent for carcinoma of the tongue. Many prominent workers believe there is a direct correlation between cigarette smoking and cancer of the lung.

Whether or not cigarette smoking is related to carcinoma of the lung must be decided by each investigator and each thinking individual. The work of Wynder and Graham⁽¹⁹⁾, of Hammond⁽²¹⁾, of Doll⁽²²⁾ and others is most impressive; however, certain other facts cannot be disregarded. It must be determined whether there has actually been a 400 per cent increase in the incidence of the disease. As already noted, the aging of the population from 1920 to 1950 accounts for an expected increase of 100 per cent in the number of cases. Recognition that the condition does exist, together with better diagnostic methods, accounts for an untold increase in reported cases. One questions whether the current popularity of the diagnosis and the requirement that a definite diagnosis be entered on the death certificate in any way influenced the results of Hammond's follow-up study. *Fortune* magazine in 1935 found the ratio of men smokers to women smokers to be 2.9:1, whereas a survey by *Collier's* in 1950 showed the proportion to be 1.9:1⁽¹⁷⁾. It is impossible to correlate this relationship to the distribution of cases according to sex in the present study, in which men outnumbered women by a ratio of 13:1. Graham⁽²³⁾, in 1955, wrote: "It must be admitted that proof of a definite relationship does not exist." Gilliam⁽²⁴⁾ has thoroughly discussed the cigarette-smoking factor in cancer of the lung. He reported, "I have previously stated that the rate of increase in recorded mortality was greatest in this country between 1914 and 1930, and it has been declining since." He added that cigarette smoke is a co-carcinogenic agent, and that the white male who smokes runs a greater risk of having cancer of the lung. He said,

however, "It is clear that this hypothesis in its entirety is untenable if the recorded increase in mortality is not in fact substantiated, but is an artefact due to appreciable changes in diagnostic accuracy." Cigarette smoking certainly does not reduce the chances of developing lung cancer. It would be most encouraging if cancer of the lung could be attributed to so simple an etiologic agent as cigarette smoking. Perhaps it would quickly lead to the solution of the whole problem of carcinoma.

Diagnosis

There are only three methods of making a diagnosis: tissue study, cytology, and clinical evaluation. Exploratory thoracotomy with tissue study for diagnostic purposes is in reality the logical end result of a clinical diagnosis.

Histologic study

Microscopic study of tissue is the only positive method of diagnosis. It can be obtained by bronchoscopic biopsy, the study of material that has been coughed up, and the biopsy of distant metastasis. On rare occasions a needle biopsy of the tumor is indicated. The study of pleural fluid also may lead to a diagnosis; however, this is not truly a tissue study nor is it purely cytology^(25,26).

There are many variable factors in reporting the percentage of positive results in bronchoscopic biopsies. In the present series bronchoscopic examination and therefore bronchoscopic biopsy were not attempted if there was a positive histologic study from a distant metastasis. Bronchoscopic biopsy in this late stage of the disease is of no value except to increase the percentage of positive examinations. The present study revealed only 15.8 per cent positive bronchoscopic specimens in 189 patients subjected to exploratory thoracotomy, whereas in the group of 126 patients who could have the lung removed, only 9.5 per cent showed a positive bronchoscopic biopsy. Bronchoscopic biopsy is possible only when the lesion is present in the main or lobar bronchi or at the beginning of the segmental bronchi.

In at least 3 patients in the group of 345 a diagnosis was made by a pathologic study of tissue coughed up by the patient. The histologic examination of distant metastasis

accounted for a diagnosis in the majority of those not subjected to exploratory thoracotomy. Routine cervical node biopsy is an excellent diagnostic procedure when carcinoma of the lung is suspected but cannot be proven by other means. When there is a palpable cervical lymph node, biopsy is imperative. Apparently needle biopsy of the lung lesion should be reserved for those patients who for one reason or another are considered inoperable, since there is a strong possibility of implanting the tumor in the chest wall or other tissue that the needle traverses. Pleural fluid may show evidence of malignancy. Malignant pleural fluid was found in 25 patients in the present series.

The cytologic study of bronchial secretions should be the best possible method of diagnosis. Since 1948 such studies have been made on all patients in this series in whom a diagnosis was not made by biopsy of distant metastasis. The cytologic study has been interesting but of little real importance in this series. The degree of clinical suspicion exercised has been of greater value than the cell study.

Clinical evaluation

The clinical diagnosis is based upon a high degree of suspicion, the history, physical findings, laboratory work, especially bronchoscopic findings, excluding those cases in which there is positive bronchoscopic biopsy and various roentgenographic findings. It should always culminate in exploratory thoracotomy if the condition of the patient permits. It is important to point out that in 189 patients subjected to exploratory thoracotomy, only 15.8 per cent had a positive histologic examination of tissue obtained by bronchoscopy. This indicates that 84.2 per cent of the patients were subjected to exploratory thoracotomy on the basis of a clinical diagnosis only. Therefore, it is the predominant method of diagnosis of carcinoma of the lung provided the disease is in a state which warrants surgical treatment.

In the clinical diagnosis the history is often of greatest value, if suspicion is high. Any patient free of a past history of lung disease, who is 30 years of age or older, should be suspected of carcinoma of the lung if he manifests a chronic pulmonary

symptom of any type. The triad of hemoptysis, pain in the chest and cough, should indicate carcinoma of the lung unless otherwise accountable for. Hemoptysis occurred in 42.3 per cent, pain in 50.1 per cent, and cough in 65.2 per cent of the patients in this series. Loss of weight is an ominous sign, since it usually indicates systemic metastasis, unless it is the result of some complication of the carcinoma such as infection with fever. It should be remembered that the patient can gain weight when the weight-losing complication is overcome, even though the carcinoma of the lung persists.

Physical examination is rarely of value in the diagnosis of an early operable carcinoma of the lung. It is more useful in the diagnosis of inoperable cases, especially when distant metastasis is present. If metastasis can be discovered by physical examination and proved by histologic examination, many patients can be saved from a useless operation.

Bronchoscopic examination may establish a diagnosis by visualization of the neoplasm or its irrefutable signs, even though a biopsy cannot be obtained. It is one of the most valuable procedures in making an early diagnosis if the cancer is in the major bronchi.

Roentgenography

Although roentgenographic examination of the chest is perhaps the most important aspect of a clinical diagnosis, carcinoma of the lung has no infallible diagnostic characteristics. The solitary round mass, atelectasis of indefinite origin, localized emphysema followed by atelectasis, fluid with atelectasis, an unexplained cavitory lesion, and a definite hilar density on lateral view are always highly suggestive. Various views, laminographic studies, and bronchographic examination are often helpful in making the diagnosis.

Despite the diagnostic facilities and methods available today, in 45.3 per cent of the patients in the present series, symptoms were so advanced that even exploratory thoracotomy was denied. In 33 per cent of those undergoing exploration, the lung could not be removed because of the advanced stage of the disease; actually, in 126 of the 345 patients the lung was removed and not all of these were free of

metastasis within the pleural cavity. These figures are not unlike those reported by other workers. Only 36 per cent of the patients seen with carcinoma of the lung could have lung resection. These figures indicate that a practical method of early diagnosis is not now available, and that the available methods of early diagnosis are not being adequately used. A persistent lung lesion which cannot be diagnosed accurately and positively should be subjected to exploratory thoracotomy and biopsy.

It is obvious that earlier diagnosis and treatment can be accomplished through an awareness of the disease by the people generally and a high degree of suspicion exercised by the medical profession as a whole, not by just the few who are interested in the problem. It is alarming that the time interval from the first hemoptysis to consultation with the thoracic surgeon averages 9.7 months in the inoperable group and 5.3 months in operable patients. In spite of contrary opinions, roentgenographic surveys of the chest and routine chest roentgenograms on all hospital admissions have proved the best method of early detection, but only when an unexplained lesion detected by roentgenographic examination leads to exploratory thoracotomy.

Treatment

Surgical excision is the generally accepted method of treatment for carcinoma of the lung. The discussion of pneumonectomy or lobectomy is of less importance when it is realized that only 36 per cent of the patients with a diagnosis of lung cancer can be resected by any means. Only a few are candidates for lobectomy. In the present series the operative mortality was 24.6 per cent. In other words, of the 126 patients undergoing lobectomy, only 95, or 27 per cent, had a chance of survival. The operative mortality is high, but Ochsner⁽²⁷⁾ reported 20 per cent, Gibbons⁽²⁸⁾ 22 per cent, and Husfeld⁽²⁹⁾ 23 per cent. When mortality figures are given for selected cases, such as the so-called curative resection, of course the operative mortality is much lower⁽³⁰⁾. The mortality rate is usually influenced by the type of risk accepted for surgery and the extent of the resection. I believe that once the chest is opened, the growth should be removed, if possible, so long as there is no mediastinal or pleural

metastasis. Of patients surviving resection of the lung, only 26.6 per cent lived five years or longer. This indicates that only 26 patients, or 7 per cent of the original 345, have been cured. This is a pessimistic point of view. It does not take into consideration, however, the relief of suffering afforded or the prolongation of life by surgery, nor does it include the hopeless status of the 45.3 per cent who could not be offered surgery. It does arouse suspicion as to whether or not there is an acceptable method of treatment. There is no doubt that for any individual patient the earlier the diagnosis and the earlier the treatment the better his chances for survival. The patient who tolerates a lung cancer for months or years without treatment, however, probably has the best prognosis. Accordingly, surgical treatment does not really have an opportunity to prove its worth unless earlier diagnosis is made and the patient given the opportunity of surgery earlier in the course of the disease.

Conclusion

It may be assumed that I am pessimistic about the cancer problem as a whole and about cancer of the lung in particular. This is untrue. Important gains have been made against cancer. Without the real or apparent increase in lung cancer in the United States during the past fifteen years, there would be no increase in cancer deaths. From 1933 to 1948, according to Public Health statistics, there was a decrease in the number of deaths from cancer in women in the United States. This is an important gain, since the aging of the population would be expected to bring about twofold increases in the death rate. Improved methods of diagnosis in all fields of cancer should produce a further increase in the incidence, and thus favorably influence the death rate. It is obvious, however, that better diagnostic methods have led to earlier treatment. Earlier and improved therapy, including surgery, irradiation, hormones, and even chemotherapy, in turn, have brought about this rather remarkable but somewhat concealed improvement.

As the most important type of cancer affecting the male population of the United States today, cancer of the lung is receiving recognition throughout the medical profes-

sion. Many advances have been made since Graham in 1933 first successfully removed a lung for cancer and cured the first patient of the disease. Even though the basic questions discussed in this paper are not completely answered, a great deal is known about them. When the problems are fully understood, they are not likely to remain unsolved for any length of time.

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Pulmonary tuberculosis should be regarded as a potentially curable disease, if by "cure" is meant the return of a patient to gainful occupation for a period of five years or more without detectable reactivation of the disease. In one excellent tuberculosis institution it has been demonstrated that such "cure" can be effected in 98 per cent of minimal cases, approximately 85 per cent of moderately advanced cases, and in even 40 to 60 per cent of far-advanced or most hopeless cases, with the application of scientific knowledge currently available and the active cooperation of all concerned, for an over-all "cure" rate of approximately 80 per cent.—William B. Tucker, M.D., Hoosier Health Herald, March, 1951

The Management of Transverse Presentation

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Transverse presentation, though rare, presents a serious delivery problem when encountered. Although there has been some decrease in the fetal mortality rate resulting from this complication, it remains quite significant, and the maternal mortality rate is also far from negligible. Its successful management requires sound obstetric judgment, operative skill, and the physical facilities necessary to deal with a complicated case.

History

Historical data are outlined in table 1.

Soranus of Ephesus, in the second century A.D., described a technique for internal podalic version in transverse lie. In the centuries that followed, version was done through a partially dilated cervix and extraction was performed after complete dilatation of the cervix⁽¹⁾. In 1807 Wigand⁽²⁾ published his discovery that the position of the fetus could be changed by external manipulation. Winter⁽³⁾, in 1886, stated that version should be done only after complete dilatation of the cervix and that extraction should follow immediately. Pinard's classic work on external version appeared in 1889⁽⁴⁾. Sachs and Poeck⁽⁵⁾, in 1926, emphasized the importance of early rupture of the membranes. In 1932 Chatunzow⁽⁶⁾ advised cesarean section if the membranes ruptured and delivery could not be effected. Eastman's excellent study appeared in 1932⁽⁷⁾. Since then several excellent reviews have appeared.

Incidence

Table 2 shows the incidence of transverse presentation as reported by various authors. In most hospitals the incidence is between 0.2 and 0.3 per cent.

Table 2
Incidence

Author	Incidence	Per Cent
Cole and Delaney ⁽⁸⁾	1:581	0.17
DeLee ⁽⁹⁾	1:200	0.50
Garber and Ware ⁽¹⁰⁾	1:419	0.24
Gareis and Ritzenthaler ⁽¹¹⁾	1:322	0.31
Johnson ⁽¹²⁾	1:500	0.20
Montello ⁽¹³⁾	1:753	0.14
Novey and Schneider ⁽¹⁴⁾	1:250	0.40

Etiology

The causes of transverse presentation are primarily relaxation of the abdominal wall and uterus due to multiparity, contracted pelvis, and placenta previa, as indicated in Table 3. Other etiologic factors include pelvic neoplasms, abnormalities in uterine development, such as bicornate uterus, excessively large fetus, previous pelvic operations, and fundal placenta. Stevenson demonstrated the placenta to be implanted in the fundal region of the uterus in 46 per cent of 52 cases of transverse or oblique presentation.

Diagnosis

The diagnosis of transverse presentation is readily made or suspected by examining the patient. Frequent abdominal examinations throughout pregnancy and particu-

Table 1
Historical Data

Author	Year	Contribution
Soranus ⁽¹⁾	2nd Century A.D.	Described internal podalic version
Wigand ⁽²⁾	1807	Published discovery of external version
Winter ⁽³⁾	1886	Suggested version be done after complete dilatation
Pinard ⁽⁴⁾	1889	Treatise on abdominal palpation
Sachs and Poeck ⁽⁵⁾	1926	Importance of early rupture of membranes
Chatunzew ⁽⁶⁾	1932	Advised cesarean section
Eastman ⁽⁷⁾	1932	Presented study of 147 cases

Table 3

Etiology

Series	No. Cases	Multiparity		Contracted Pelvis		Placenta Previa	
		No.	Per Cent	No.	Per Cent	No.	Per Cent
Gareis and Ritzenthaler ⁽¹¹⁾	162	86	49.4	16	9.9	19	11.7
Harris and Epperson ⁽¹⁵⁾	91	80	87.9	20	21.9	7	7.7
Montello ⁽¹³⁾	73	18	24.7	9	12.3	12	16.4
Garber and Ware ⁽¹⁰⁾	65	28	43.1	13	20.0	5	7.7
Totals	391	206	52.7	58	14.8	43	10.9

Table 4

Complications of Labor

Series	No. Cases	Prolapsed Fetal Part		Prolapsed Cord	
		No. Cases	Per Cent	No. Cases	Per Cent
Gareis and Ritzenthaler ⁽¹¹⁾	162	61	38.0	37	23.0
Garber and Ware ⁽¹⁰⁾	65	30	46.0	17	26.0
Totals	227	91	40.0	54	24.0

larly during the last trimester are urged. Abdominal and pelvic findings should be confirmed by x-ray.

Mechanism

An understanding of the mechanism of labor in transverse presentation is necessary for proper management. Unless the fetus is unusually small or macerated, spontaneous birth is impossible. The engaging shoulder fits poorly into the pelvis, thus permitting the hydrostatic pressure of the contracting uterus to rupture the membranes prematurely. As labor progresses, the shoulder is forced into the pelvis and the corresponding arm and/or cord frequently prolapses. With the head in one iliac fossa and the breech in the other, the uterus contracts vigorously. The physiologic contraction ring rises and becomes more marked. Thus the lower uterine segment becomes quite thin and eventually ruptures.

Complications

The complications of transverse presentation are varied and quite serious. Prolapse of a fetal part, the cord, or both constitute one of the chief complications. Table 4 shows the frequency of this accident. Hemorrhage due to placenta previa, premature separation of the placenta, uterine atony, or ruptured uterus is common. Gareis and Ritzenthaler reported hemorrhagic complications in 29.0 per cent of their cases. The incidence of toxemia and hypertension is likewise high, as many of these

patients fall into the lower socio-economic group and have had little or no prenatal care. Infection due to premature rupture of the membranes and prolonged labor is common. Rupture of the uterus is a dangerous and frequent complication, particularly in neglected cases.

Mortality

Table 5 shows the maternal mortality in collected cases. Most of the deaths were due to sepsis and blood loss, and occurred before the days of chemotherapy, antibiotics and multiple blood transfusions. In reviewing these articles it was encouraging to note that only a very few mothers have died as a result of transverse presentation during the past 10 years.

Table 5

Maternal Mortality

Series	No. Cases	Deaths	Per Cent
Gareis and Ritzenthaler ⁽¹¹⁾	162	2	1.9
Harris and Epperson ⁽¹⁵⁾	131	4	3.05
Montello ⁽¹³⁾	73	1	1.4
Garber and Ware ⁽¹⁰⁾	65	6	9.2
Totals	431	13	3.01

Fetal mortality remains quite high. Table 6 compares the rate in vaginal delivery with that in cesarean section. In all these cases the fetal heart was present on admission to the hospital, and all infants weighed 1,500 Gm. or more. Early rupture

Table 6
Fetal Mortality In Collected Cases
(Fetal Heart Present on Admission)

Author	Vaginal Delivery			Cesarean Section		
	No. Cases	Fetal Deaths	Per Cent	No. Cases	Fetal Deaths	Per Cent
Eastman	49	21	42.9	21	0	0
Cole and Delaney	28	5	17.9	30	0	0
Johnson	75	32	42.7	16	4	25.0
Garber and Ware	15	10	66.7	13	1	7.7
Montello	24	5	20.8	29	2	6.9
Garris and Ritzenthaler	81	29	35.8	32	8	25.0
Harris and Epperson	33	11	33.3	50	1	2.0
Totals	305	113	37.0	191	16	8.4

of the membranes as well as prolonged labor increases the fetal mortality.

Management

Abdominal palpation during the last trimester of pregnancy, and particularly during the last six weeks, should be a routine procedure in prenatal care. Many of the poor results from transverse presentation are due to delayed diagnosis. Once the diagnosis has been made, the cause should be sought. The bony pelvis should be reevaluated. Stevenson⁽¹⁶⁾ recommends placentograms on patients who exhibit transverse presentations near term, and we feel that this is a valuable procedure. Spontaneous version will occur late in pregnancy in about one fourth of the cases. External cephalic version should be attempted at 32 to 34 weeks of pregnancy and repeated weekly, if necessary, and if there is no contraindication to vaginal delivery. The use of anesthesia for external version is questionable. External version should not be attempted if there is a history of vaginal bleeding or previous operation on the uterus. Obviously it should not be attempted in the presence of placenta previa or marked pelvic contracture.

A primigravida near term, with a persistent transverse presentation and any significant degree of pelvic contraction, is a candidate for elective cesarean section. Also, a primigravida with a normal pelvis, whose infant presents transversely at the onset of labor should be delivered by section.

In a multiparous patient external version is occasionally successful in early labor. If successful, the head should be held

in place for several contractions. If membranes have ruptured, external version should probably not be attempted because of the danger of prolapse of the cord.

Internal version and breech extraction offer a method of delivery in the multiparous patient. Certain criteria should be fulfilled before attempting this procedure, however. The uterus should be well relaxed, the membranes intact or only recently ruptured, the pelvis normal, and the cervix completely dilated. Unfortunately, very few cases of transverse presentation will fall into this category. Mangone and Kane⁽¹⁷⁾, in their series, found 19 cases which were considered ideal for vaginal delivery. There were 10 fetal deaths, or 52.6 per cent.

Generally we do not feel that a patient should be permitted to continue in labor with the hope that internal version and extraction can be performed when the cervix becomes completely dilated. An exception to this general rule is in the case of premature births. If the fetus is thought to be quite small and the chance for survival slim even under the best of circumstances, then one is possibly justified in permitting the patient to continue in labor under close observation for a short period of time. One should not consider vaginal delivery of a premature infant easier than a term fetus, however, as fetal mortality in premature infants delivered vaginally is extremely high. The State Maternal Welfare Committee in its reviews of 1,400 deaths found 70 or 5 per cent of all maternal deaths to be associated with version and extraction⁽¹⁸⁾.

The more liberal use of cesarean section

has reduced and will reduce fetal mortality considerably. For the successful use of cesarean section, however, the diagnosis must be made before or early in labor. By the more frequent use of cesarean section, a high fetal mortality is avoided and there is less danger of rupture of the uterus.

Spontaneous evolution should not be relied upon unless the fetus is quite small or macerated. A Braxton Hicks version may rarely be indicated if the fetus is dead, the pelvis ample, and the cervix dilated sufficiently to permit manipulation.

The use of the uterine or vaginal bag has almost been discarded. It is of little or no value in preserving the amniotic fluid or in dilating the cervix.

The so-called "neglected" transverse presentation presents a real problem. By a "neglected patient" we mean one in whom the membranes are ruptured, the fetal shoulder is impacted in the pelvis, infection is present or a potential threat, and prolonged labor has led to exhaustion. Rupture of the uterus is more frequent and dangerous in this type of case. Version and extraction should not be attempted in any neglected case of transverse lie. A cesarean section should be done under these circumstances, even in the presence of infection or a dead fetus. Such a procedure is much safer for the mother than would be a destructive operation such as embryotomy or decapitation. Needless to say, supportive measures such as fluids, blood transfusions and antibacterial agents should be used liberally.

Summary

1. The history, incidence, etiology, diagnosis, mechanism, and complications of transverse presentation have been briefly reviewed.

2. The management of this complication has been discussed.

3. Early diagnosis and external version are urged.

4. The more liberal use of cesarean section will reduce maternal mortality considerably and fetal mortality markedly.

5. Internal podalic version should not be used routinely.

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Infant Mortality and Morbidity in Relation to Certain Maternal Factors

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It seems fitting at this time to discuss a subject of interest to the obstetrician, the pediatrician, and the general practitioner who serves both functions. In the latter years of Oren Moore's life, he and his colleagues saw their effort to reduce maternal mortality succeed beyond their expectations. Their success in introducing the concept of prenatal care was so remarkable that maternal mortality rates dropped a hundred-fold from 1935 to 1951. Unfortunately the satisfaction derived from this remarkable achievement is dimmed by the failure of infant and fetal mortality rates to show a similar dramatic improvement. With the elimination of the problem of maternal mortality in sight, the medical profession can concentrate on the survival and well-being of the infant.

Parks⁽¹⁾ has stated that infant mortality and morbidity are a more sensitive index of good obstetric care than is maternal mortality. The current terminology associated with infant mortality and morbidity is in a state of confusion. For purposes of clarity several of these terms should be defined. The word "stillborn" will be applied to any fetus of more than 20 weeks' gestation that shows no evidence of life at birth. "Neonatal death" will apply to the live-born infant, regardless of size, who dies within the first 28 days after birth. "Perinatal death," a relatively new term, will include both stillbirths and neonatal deaths. The term "obstetric death" will be used rather loosely to designate any death, maternal or infant, which occurs as the result of any factor associated with conception, gestation, and delivery.

The Problem

Few people, even obstetricians and pediatricians, realize the magnitude of the problem of fetal mortality and morbidity. In North Carolina in 1953, there were a total of 4,800 obstetric deaths of which 112 were

maternal⁽²⁾. This figure was exceeded only by the number of deaths caused by all diseases of the circulatory system. It is higher than the number of deaths in the same year from malignancies and of all accidental deaths. If the 11,000 potential lives lost as the result of abortion were added to this total, the total obstetric deaths would rise to 16,000 for that year.

The infant morbidity problem is even more tragic. Obstetric complications during the pre- or paranatal period are responsible for 60 per cent of the children with cerebral palsy in our population⁽³⁾. Fifty to 80 per cent of the mentally retarded children are likewise the result of some complication of pregnancy⁽⁴⁾. It has been estimated that at least 70 per cent of all children manifesting cerebral palsy, mental retardation, and epilepsy are the consequence of obstetric injury⁽⁵⁾. Recently certain types of behavior problems have been related to obstetric complication⁽⁶⁾.

In summary this means that in 1953, in North Carolina, there were approximately 125,000 pregnancies, 16,000 of which terminated either in abortion, stillbirth, or death prior to the twenty-eighth day of life. An additional 5,000 or more infants were born crippled or malformed as a consequence of some obstetric complication. The total mortality and morbidity, therefore, represents 17 per cent of the total pregnancies which occurred in the state during this year.

In recent years evidence has been accumulating that much of the fetal mortality and morbidity is preventable. Lilienfeld and his associates, in reviewing the problem of infant morbidity, have noted the striking parallel between the obstetric complications which result in infant mortality and those which are associated with infant morbidity, such as cerebral palsy, epilepsy, mental retardation, and certain behavior disorders. In view of their findings they have postulated a "continuum of fetal casualty." Five of the most frequent maternal factors as-

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sociated with infant mortality and morbidity will be discussed.

Nutrition

The importance of adequate nutrition during pregnancy, and for that matter at all times, is accepted without question. On the other hand, with the exception of obvious acute deficiencies, nutritional factors are often difficult to relate satisfactorily to disease processes. One reason for this is the difficulty of obtaining reliable dietary data. Secondly, it is probable that the nutrition of the mother before conception is as important as diet during pregnancy. Finally, there are many aspects of nutrition which as yet are not understood. In general, mothers from the better social and economic classes have fewer abortions and lower perinatal mortality rates⁽⁸⁾. It is true that these women also have many advantages other than nutritional over their sisters in the lower socio-economic groups. It is a reasonable assumption, however, that their superior nutrition is a major factor in their better health.

Mortality

Aside from general observations little work concerning the effect of nutrition on abortion rates in the human has been published. It has been suggested that good health and nutrition are better therapeutic agents in the prevention of abortion than are the hormones. In animals a variety of acute dietary deficiencies will produce abortion.

The relationship of the socio-economic status of the mother to perinatal mortality has been shown repeatedly by studies in this country and in England^(8,9). As stated previously, it seems reasonable to assume that this is, in a large measure, due to nutrition. The most extensive study on neonatal mortality yet carried out in this country has been in Chicago⁽⁶⁾. For the purpose of evaluating the socio-economic influence in this study, the patients were divided into five groups, based on both social and economic factors. There are numbered one to five, from the best to the worst. The English in recording their vital statistics use a similar system.

In the Chicago study the perinatal mortality rates increased from class one to class five. Baird's studies⁽⁹⁾, in England, con-

firmed this observation. During the war he was able to carry his observation one step further. In England, during the war, all pregnant women regardless of their socio-economic status received essentially the same nutrition and medical care. During these years the perinatal mortality rates in the lower socio-economic classes approached those of the better classes. In the years since the war, however, the rates in the lower classes have again increased. This, of course, raises the obvious question of whether the major factor was nutritional or whether it was environmental hygiene and better medical care.

A study of the perinatal mortality rates in a private hospital as opposed to those in the free hospital in Aberdeen was made. These patients received essentially the same medical care. The perinatal mortality rate in the free hospital was more than twice that in the private hospital. Since prematurity accounts for a large percentage of perinatal mortality, Baird considered this factor separately. The incidence of prematurity was one and one-half times higher in the charity hospital. However, 18 per cent of the premature infants born in the free hospital weighed less than 4 pounds, in rather sharp contrast to 3 per cent in the private hospital group. In the Chicago study the incidence of premature delivery dropped 35 per cent from class five to class one. One of the few positive findings in the Vanderbilt nutrition studies was the high incidence of malnutrition in mothers of premature infants⁽¹⁰⁾. Similar observations have been made elsewhere⁽¹¹⁾.

Congenital anomalies

Little is known concerning the influence of nutrition on the production of congenital anomalies in the human being. In animals, deficiencies of vitamin A, riboflavin, pantothenic acid, and numerous other essential dietary factors have consistently produced a high incidence of malformed offspring⁽¹²⁾. Gillman and co-workers⁽¹³⁾, using trypan blue, a substance which binds plasma albumin and does not cross the placental barrier, were able to produce malformation in 80 per cent of their animals. In addition the litters were usually smaller in number and size, and the postnatal development of the surviving animals was retarded. They concluded that the resulting malformations

were due to metabolic disturbances in the mother.

Murphy⁽¹⁴⁾ noted, in a survey of 571 defect-bearing families, that 62 per cent fell in the poor or very poor economic classes. These classes were comparable to the Chicago and English classes of four and five. In contrast, only 3 per cent of the families studied were in the best socio-economic classification. It is further noted that 70 per cent of the mothers were anemic when bearing the defective child, and 40 per cent of them had histories of gross dietary deficiencies.

Neuropsychiatric disorders

As yet very few data have been published regarding the association of the mother's nutritional status and the subsequent occurrence of the neuropsychiatric disturbances mentioned previously. In many of the published reports on cerebral palsy⁽¹⁵⁾, however, severe anemia and severe nausea and vomiting have been recorded more frequently in the mothers of the children with these disorders than in the control groups. In view of the pathology of the neuropsychiatric disorders, nutrition would seem to play only an indirect role. For instance, nutritional deficiency might give rise to placental abnormalities or toxemia, which in turn might result in brain injury.

Age and Parity

Mortality

Age and parity are frequently considered important factors in infant mortality and morbidity. In general, infant mortality is high in mothers less than 19 years of age, falls to its lowest level between the maternal ages of 20 and 29, and rises thereafter. The same type of curve is noted in relationship to maternal mortality and infant morbidity. On the other hand, infant mortality rises steadily after the first pregnancy. In women beyond the age of 35 years, the infant and maternal mortality rates are three times that recorded between the ages of 20 and 29^(2,5b,16).

Congenital anomalies

With the exception of mongolism, maternal age has not been found to be related to the incidence of congenital anomalies. Mongolism is much more common after the age of 35 years⁽¹⁷⁾. Benda⁽⁴⁾ considers that mon-

golism is due to hormonal disturbances of the endometrium, and has termed it threshold sterility. The incidence of congenital anomalies, however, does increase with the increasing gravidity of the mother, paralleling the infant mortality rates in this respect⁽¹⁴⁾.

Neuropsychiatric disorders

The relationship of maternal age and parity to the neuropsychiatric disorders differs somewhat from that noted for infant mortality. At least half of the children afflicted with cerebral palsy are first-born. If this group is eliminated, however, the incidence of cerebral palsy and other neuropsychiatric disorders rises with increasing parity and age. It is interesting that the average age of the mothers of children with cerebral palsy is given as 25 to 27 years, indicating that, even though half of the children are first-born, the mothers in general are older than average⁽¹⁸⁾.

Maternal Infectious Disease

The reports of Gregg⁽¹⁹⁾ and Swan⁽²⁰⁾ concerning rubella as the cause of certain congenital anomalies stimulated considerable interest in the role of infectious disease as a factor in infant morbidity and mortality.

Mortality

Abortion and premature labor frequently complicate acute febrile illnesses such as pyelitis, pneumonia, and influenza. Acute surgical infections of the abdomen likewise are associated with a high incidence of abortion or premature labor and subsequent fetal loss. Fortunately antibiotic therapy has done much to eliminate this problem. According to the data accumulated by the Committee on Maternal Welfare of the North Carolina State Medical Society, pneumonia, influenza, and surgical conditions of the abdomen carry a much worse prognosis for the pregnant woman than for the non-pregnant one. Although no adequate studies on the influence of maternal infectious disease on perinatal mortality rates are as yet available, Boudesen and co-workers^(8b) point out that these complications undoubtedly increase the perinatal death rate, although by how much is not clear.

Congenital anomalies

Some authors have questioned the validity of the conclusions drawn by Gregg and Swan; however, in 1953, Kaye⁽²¹⁾ reviewed

all the cases of maternal virus infection reported in the literature up to that time. On the basis of the cases reported, maternal rubella in the first and second month of pregnancy resulted in malformations in at least 40 per cent of the offspring. A marked increase in the incidence of congenital anomalies over the expected rate was noted following maternal mumps, measles, and varicella.

A significant increase in the incidence of congenital anomalies followed poliomyelitis, and a slight but definite increase occurred after infectious hepatitis. Perhaps the most striking feature of this report was the fact that the abortion rate following these two diseases markedly increased. This suggests the more serious effect of these conditions on the fetus and supports the contention of Lillienfeld that some of the maternal factors in infant mortality and morbidity are predominantly lethal and others predominantly sublethal. There is no evidence that any of the viruses so far known to be responsible for the development of congenital anomalies cross the placental barrier. The virus of smallpox, however, is known to cross the placental barrier even when the mother is immune to the disease⁽²²⁾. Toxoplasmosis and syphilis, although not viral diseases, likewise are known to infect the fetus directly⁽²³⁾. It has been suggested that the viruses of mumps, German measles, and varicella cause a primary metabolic disturbance in the mother and in that fashion injure the developing fetus⁽¹³⁾.

In animal experiments a number of teratogenic agents—that is, asphyxia, certain chemicals, trypan blue, dietary deficiency, and x-ray—will produce malformation. The resulting anomaly will depend largely upon the time at which the injurious agent was introduced. In other words, a number of different substances will disrupt the developmental process, and the subsequent malformation will depend upon the embryologic changes occurring at the moment of injury⁽²⁴⁾.

Neuropsychiatric disorders

There seems to be little relationship between virus infections of the mother and the occurrence of cerebral palsy and its allied disorders. On the other hand, toxo-

plasmosis and syphilis will give rise to infection of the central nervous system in the infant, resulting in conditions resembling congenital anomalies. Toxoplasmosis in particular produces hydrocephalus, microcephaly, and other disorders of this nature. These, however, are the result of actual disease and not embryologic disturbances⁽²³⁾.

Mechanical Birth Injuries

In regard to mechanical birth injuries, the problems of abortions and congenital anomalies can be dismissed since they are obviously unrelated.

Mortality

Perinatal mortality due to mechanical birth injuries is one of the five most common causes of perinatal deaths, accounting for 10 to 16 per cent of all such deaths^(8b,25). Ninety-five per cent of these mechanically induced injuries involve the central nervous system; the remaining involve the visceral organs. Asphyxial injuries are likewise almost entirely restricted to the central nervous system.

Mechanical injuries are secondary to the type of delivery or to procedures considered preparatory for delivery. The incidence of mechanical injury is much higher in the premature than in the mature infant^(25b). Our vital statistics do not list such traumatic factors as pituitary extract, tumultuous labor and delivery, abnormal presentations, excessive traction or resistance, and so forth. Obstetric skill is often a major factor in the outcome of the infant, although the results are not recorded. Efforts to evaluate the skill of the obstetrician by comparing the technical results obtained on private service versus ward service reveals only inadequate training and supervision of the house staff, plus a well developed ability in statistical deception.

There is general agreement that certain types of delivery are more commonly associated with mechanical birth injury^(8b,25). Mechanical injuries occur 10 times more frequently following version and extraction than after spontaneous cephalic delivery. Mid- and high forceps extractions are nearly as dangerous. Fetal injuries are three times more frequent with breech deliveries than with cephalic deliveries. The lowest incidence of mechanical injury fol-

lows low forceps, spontaneous cephalic deliveries, and cesarean section. Asphyxial injury in association with cesarean section, however, is quite high, so that this does not imply that cesarean section is a safer method of delivery for the infant.

Neuropsychiatric disorders

The association of mechanical birth injury with cerebral palsy and its associated disorders is not as common as has been thought in the past. Nevertheless a definite percentage of these disorders can be related to such injuries sustained at birth. One of the consistent findings in the studies of children with cerebral palsy is that 4 to 12 per cent were the result of breech deliveries, in contrast to the expected incidence of 3 per cent⁽²⁶⁾. Eastman⁽³⁾ reports that the incidence of cerebral palsy at Johns Hopkins Hospital is twice as high following breech delivery than following cephalic presentation. These figures fit with the higher mortality rate associated with breech deliveries due to mechanical brain injuries.

Other factors strongly suggesting mechanical injury have been noted in children with cerebral palsy and allied disorders. These are mechanical prevention of delivery in 10 per cent; version and extraction in 18 per cent; difficult forceps in 10 to 12 per cent; and excessively large babies in 9 to 15 per cent. The incidence of all these factors is much higher than control groups⁽²⁶⁾. Since these infants all survive it is difficult to know to what extent the injury is primarily mechanical and what extent asphyxial in origin.

Injuries Due to Asphyxia

Obstetric injury in the broad sense is much more commonly the result of asphyxia than of trauma. Eastman⁽²⁷⁾, in his classic paper "Mount Everest in Utero" points out that the oxygen tension of fetal blood is roughly equivalent to that present at the altitude of 29,000 feet. MacKinney and co-workers⁽²⁸⁾ have noted that the arterial oxygen saturation of the umbilical vein at birth is approximately 50 per cent of the adult level. Both of these observations emphasize the extremely critical state of oxygenation of the fetus *in utero* and at delivery. Any number of factors may alter available fetal oxygen. The maternal complications leading to oxygen deprivation of

the fetus may be minimal and in many cases pass unnoticed. For instance, for each degree of elevation of the temperature above normal, the oxygen requirement is increased by 7 per cent. Thus a fever of 102 to 104 F. will increase the oxygen requirement by 28 to 50 per cent⁽²⁹⁾. The asphyxia may be severe or mild, prolonged or even intermittent, and yet produce considerable anoxia of the fetus, with subsequent permanent damage. It is at least theoretically possible that asphyxia during the early months of pregnancy may result in death of the fetus with abortion or, if less severe, perhaps in disturbances of embryologic development and the formation of congenital anomalies. In animals, asphyxial states will produce both fetal death with abortion and congenital anomalies⁽²⁴⁾.

Since intrauterine asphyxia may be due to a wide variety of causes that actually overlap mechanical trauma, it is difficult to ascertain how many actual fetal deaths are due to asphyxia alone. It has been estimated that 30 to 50 per cent of all perinatal deaths are secondary to intrauterine asphyxia^(2,8b,25). When one considers the number of possible causes of asphyxia, this fact can be readily appreciated. A partial list grouped under anoxic anoxia would include pulmonary infection, asthma, obstetric shock, hemorrhagic shock, abnormalities of uterine contractions, premature separation of the placenta, placenta praevia, rupture of the uterus, and various cord complications. Under the stagnant type of anoxia would fall cardiac disease; under the anemic type of anoxia, both acute and chronic anemia; and under the cytotoxic variety of anoxia, the analgesic and anesthetic drugs, and, of course, numerous others.

The most common complications of pregnancy associated with perinatal deaths are the various bleeding complications, cord complications, toxemia of pregnancy, abnormal labor (including prolonged labor), breech deliveries, and cesarean section. As in regard to mechanical injuries, a premature infant is much more susceptible than the term infant.

Neuropsychiatric disorders

Lilienfeld^(6,7a,b), Benda⁽⁴⁾, Eastman⁽³⁾, and others have noted a significant association between cerebral palsy and the complications previously mentioned as a cause of

asphyxial perinatal deaths. The bleeding complications, premature separation of the placenta, placenta praevia and the unspecified types of bleeding were five times more common in the cerebral palsy group than in the control group. Abnormal labor, breech delivery, and medical complications were noted from two to three times more frequently among the children with cerebral palsy than in the control group. Lilienfeld's studies have indicated that similar associations exist in epileptics, mentally deficient children, and certain behavioral disorders. In contrast, a study of children with speech disorders failed to reveal any such association, a point which tends to support his findings in the other conditions. Benda⁽⁴⁾ studied a group of children who, although mentally retarded, showed no other defects. In these children the obstetric history contained one or more of the foregoing obstetric complications. Examination of the brains of these children following death revealed gross evidence of rather extensive brain injury. The majority of the obstetric complications occurred during the antenatal period, with only 20 per cent being reported in association with the delivery itself.

This, of course, is by no means a complete review of all the environmental factors which enter into the problem of fetal mortality and morbidity. Genetic factors, being beyond the scope of this discussion, have not been mentioned. Their importance varies with specific disorders. Lethal genetic factors are said to occur, but are rare. The incidence of congenital anomalies due entirely to genetic factors is now considered to be much less common than formerly thought⁽³⁰⁾. Genetic factors account for only 10 per cent of the mentally retarded and epileptic children⁽⁴⁾. The incidence of hereditary cerebral palsy is likewise exceedingly rare⁽³⁾.

Animals show varying degrees of susceptibility to teratogenetic agents, presumably because of the different genetic backgrounds. It seems probable that some human beings are genetically more susceptible to environmental influences than are others^(17a).

Summary and Conclusion

In summary, certain obstetric factors may result in fetal damage. The effect de-

pends not only upon the severity of the insult but also on the time during pregnancy at which the insult occurs. The most frequent noxious influences appear to be extremes of age, increasing parity, malnutrition, maternal infectious disease, and mechanical and asphyxial injuries. Many of the factors previously mentioned are frequently noted in maternal mortality surveys. The causes of maternal mortality in North Carolina are toxemia, hemorrhage, embolism, infection, anesthesia, heart disease, and other medical complications, in that order. In view of this fact, Lilienfeld's hypothesis might be expanded to the "continuum of fetal and maternal casualty."

Better obstetric care has resulted in lower maternal mortality rates and can result in lower fetal mortality and morbidity. In the New York City perinatal mortality survey, 35 per cent of the deaths were considered preventable. The preventable factors were predominantly in the prenatal and natal period and, therefore, obstetric rather than pediatric in nature. Obstetric care certainly can be improved in a number of respects:

1. Better nutrition
2. Closer attention to the minor illnesses complicating pregnancy
3. Prevention of prematurity and better care of the prematurely born infant
4. Improved management of the bleeding complication
5. Better judgment in the type of delivery
6. More careful and less frequent use of analgesic and anesthetic agents
7. Improved planning of pregnancies.

The hypothesis that fetal mortality and morbidity is largely environmental and therefore preventable offers a new and dynamic approach to this problem.

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Office Gynecology

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Office gynecology can be thought of as embracing three main groups of patients—those with vaginitis and leukorrhea, those with carcinoma and cervicitis, and those with disturbances of bleeding.

Vaginitis

The patient with a vaginal discharge may have one of several types of vaginitis—*Trichomonas* infestation, moniliasis; the so-called nonspecific vaginitis, usually caused by the *Staphylococcus*, *Streptococcus* or colon bacillus; or senile vaginitis. In virtually all these patients, the symptoms are pretty much the same. Itching is severe, there is a moderate to profuse discharge, and soreness is present. Urethritis and cystitis may accompany the infection.

In all three types the pathologic condition is essentially the same. The normal acidity of the vaginal secretion, which averages pH 4.5, has been lost, and the growth of the Doederlein bacillus, which maintains the acidity, has been suppressed. The epithelial lining of the vagina has been thinned and the glycogen in the cells depleted. The *Trichomonas* organism thrives in a pH of from 5 to 6, *Monilia* from 5.5 to 6.8, and the *Staphylococci*, *Streptococci* and colon bacilli from 5.8 to 7.8. A fairly good idea of the pH present can be determined at the outset by placing some of the discharge on special pH litmus paper.

Trichomonas

The most frequent type of vaginitis is caused by *Trichomonas vaginalis*, a motile pear-shaped flagellate, with an undulating cell membrane. The leukorrhea produced by this organism is typical in appearance. It is thin and yellowish white, is characteristically bubbly, and forms pools behind the cervix. Pruritus is severe, and there is intense redness and roughness of the cervix, vulva, and vagina. The so-called strawberry vagina may be produced, with the characteristic mottling and scattering of petechial spots throughout the vagina.

This type of vaginitis is diagnosed by demonstrating the *Trichomonas* by smear

technique. A specimen of vaginal secretion is removed from the posterior fornix with a wire loop and placed on a glass slide, or a drop of the discharge from the concave posterior blade of the speculum can be placed on the slide, using the gloved finger. This drop of secretion is diluted with warm normal saline or Ringer's solution. A cover glass may be used but is not essential. The slide is examined under the high, dry microscope lens, with part of the light being cut off. The organisms are slightly larger than pus cells and are identified by their shape and the movement of the four flagellae and the undulating membrane.

Treatment of the condition is prolonged and vexing, with repeated recurrences. The number of therapeutic agents which are publicized as effecting cures for this condition are too numerous to mention. A satisfactory agent should restore the normal acidity of the vaginal secretion, as the *Trichomonas* is not pathogenic at a pH of 4.5. The agent should also contain a detergent to remove the surface mucus, as the trichomonads burrow into the surface of the epithelium. Acid douches are usually used in conjunction with any particular therapeutic agent. In our practice Floraquin, containing Diodoquin, has been a very satisfactory agent.

Office treatment for several visits consists of cleansing the vagina with mild soap and water, drying, and insufflating 4 to 6 Gm. of Floraquin powder into the vagina. One moistened Floraquin tablet is inserted high in the vagina at home, morning and night, with a vinegar douche preceding one of the instillations, and this daily therapy is continued for six to eight weeks. During active menstrual bleeding, since the menstrual blood raises the pH in the vagina, three to five tablets are inserted daily and the douche is dispensed with. If the smear is negative after two periods, the patient should continue to insert Floraquin tablets during her menses for several more months.

A somewhat simpler and quite satisfactory treatment has been with Milibis sup-

positories. Five suppositories used on alternate nights, together with douches, will frequently effect a cure. Should the case recur or resist treatment, one should look for foci of infection in Skene's or Bartholin's glands, or suspect an infection in the husband's prostate.

Monilia

Yeast vaginitis, or moniliasis, is caused by the fungus *Candida albicans*, and is very common in pregnancy and diabetes. The symptoms are the same as for *Trichomonas* except that the discharge is characteristically thick and cheesy, and adheres to the vaginal walls and cervix. The organisms are demonstrated by identifying yeast buds and mycelia in a hanging drop preparation or gram stain smear. Fluconazole is effective in treating this type of vaginitis, but probably the most widely used therapeutic agent is gentian violet, applied in the office as a 1 or 2 per cent solution to the thoroughly dried vagina on one or two occasions, and used as a jelly or suppository at home, being applied by the patient daily at bedtime for 12 days and accompanied by vinegar douches. Propionic acid, in the form of Propion Gel, is effective and not quite so unpleasant for the patient to use, and is used at home daily for two weeks.

Nonspecific Vaginitis

The mixed infection of nonspecific vaginitis produces a purulent discharge with itching and redness and is diagnosed by finding the offending organisms on Gram stain and by not finding *Trichomonas* or *Monilia*. This infection will respond to Fluconazole and to many of the other trichomonocides.

Senile vaginitis

Senile or atrophic vaginitis is commonly encountered in women past the menopause. With the failure of estrogenic production, the vaginal mucosa atrophies, then becomes very prone to infection. The patient complains of a discharge accompanied by itching, soreness and burning. Frequently tiny superficial areas of granulation develop, and slight bleeding may result and adhesions form. Estrogenic therapy is of great benefit, as it thickens the vaginal mucosa and increases the circulation in the pelvis. It may be given orally as Premarin, 1.25 to 3.75 mg. daily, or as a vaginal

cream or suppository. Acid douches alone will relieve many of these cases.

Pruritus vulva

Pruritus vulva is given separate mention because of its frequency. It has many causes, including uncleanness, concentrated or infected urine, diabetes, vaginal discharges, parasites such as lice or pinworms, various skin diseases including eczema and ringworm, blood dyscrasias, and leukoplakia. In a certain percentage of cases the etiology is not determined. The cause can usually be found by simple gynecologic examination, perhaps with the use of vaginal smears. Other cases may require careful general examination and laboratory studies including a blood count, urinalysis, and stool examination. In addition to treatment of the condition found, measures for symptomatic relief of the itching should be used. Many preparations have been recommended for this purpose. Hydrocortone ointment, 1 or 2½ per cent, has proved effective, as has Neo-Cortef ointment, containing hydrocortone and neomycin, and Diothane ointment.

Carcinoma

Office gynecology includes no function more important than the early diagnosis of cervical and uterine carcinoma, and emphasis will be placed upon utilization of cervical and vaginal smears and proper biopsies. The uterine cancer age is from 35 to 70—the disease is rare before or after this period. The nulliparous patient is less likely to have the disease. Fungal lesions occur, on the average, 10 years later than cervical ones, and are one-tenth as common. The diagnosis of carcinoma should be assumed until proven otherwise if the patient has (1) postmenopausal bleeding, (2) intermenstrual bleeding, especially postcoital, and (3) a foul watery discharge.

It is erroneous, however, to think that carcinoma is improbable in the absence of bleeding. Early carcinoma presents no signs or symptoms, and by the time bleeding or pain has occurred, the lesion is advanced and the possibility of cure less. Hence early diagnosis is of great importance. Similarly, large fungating lesions or large malignant erosions offer no diagnostic problem; these probably can't be cured anyhow. Diagnosing the normal or relatively

normal appearing cervix which has become malignant is the challenge.

While surgical biopsy is the ultimate diagnostic test, complete dependence on it is unreliable. It is a focused test, limited to one area, and a single biopsy of a suspicious cervix has as much chance of missing as of finding an early carcinoma. The biopsy should be combined with a vaginal and cervical smear which can be relied upon to give dependable evidence of malignant change before visible changes have occurred.

The Papanicolaou smear

It should be remembered that vaginal smears should not be made following a douche. No lubricant should be placed on the speculum or the gloved hand. Various methods of obtaining vaginal secretion may be used. It may be aspirated from the posterior fornix with a curved glass pipette and rubber bulb and placed on a slide; it may be transferred from a cotton applicator to the slide; or the speculum may be withdrawn and some of the secretion in the curved blade placed on the slide with the gloved finger. In all instances the smear should be uniform and thin. *It is advisable also to make another slide with secretion or cells taken directly from the cervix either by twisting a cotton applicator against the squamo-columnar junction or by scraping the surface of the cervix with a special type of wooden spatula.* Before they have dried, the slides should be placed immediately into a fixative consisting of equal parts of ether and 95 per cent ethyl alcohol. To ship them, they should be fixed for at least five minutes, and then, before the fixing solution has dried, one to two drops of glycerin should be placed on the slide, a clean glass slide placed over this immediately, and the slides held together with paper clips.

The surgical biopsy

Final diagnosis rests on the surgical biopsy, which can be done in the office with a biopsy forceps. In determining the site of biopsy it is important to remember that most cervical malignancies arise from the junction of squamous and columnar epithelium; so the biopsy should be done in this area. The Schiller test is of aid in determining the site of biopsy. This is done by painting the cervix with Lugol's solution

on a swab stick. Normal tissues stain a dark mahogany brown with iodine, but any abnormal area (such as carcinoma, scars, cyst and erosions) will not take the stain and will be pale in comparison. Since biopsy is so likely to miss a lesion, it is advisable to take specimens from all four quadrants.

To summarize the salient points in biopsy and cytodiagnosis of lesions of the cervix and fundus, the following program is suggested:

- (1) Do routine yearly pelvic examinations on all patients from 35 to 70.
- (2) Make cervical and vaginal smears on all patients, regardless of a normal-appearing cervix.
- (3) If the cervix is suspicious, make smears and do four quadrant biopsies including the lesion.
- (4) If the smear is positive and the biopsy negative, *admit* patient for dilatation and curettage and conization of the cervix, removing the entire squamo-columnar junction.
- (5) If the smear is negative and the biopsy positive, treat for carcinoma.

Benign Cervicitis

Chronic cervicitis is one of the most common causes of leukorrhea. The usual cause is childbirth lacerations, with infection. The cervix is lacerated, scarred, eroded, everted, and hypertrophied. Frequently the infection results in retention cysts of the endocervical mucous glands — the blue-domed nabothian cysts. The vaginal discharge is usually mucopurulent, and the organisms are Staphylococci and Streptococci. The purulent material may invade the urethra and bladder and cause cystitis, or infection may spread to the broad ligaments, uterosacral ligaments, and pelvic glands, causing dyspareunia and abdominal pain. If it has been decided that the cervix is benign, and is not so badly lacerated and infected as to require conization in the hospital, it can be very satisfactorily treated in the office by electro-cauterization. If considerable purulent discharge and inflammation are present, it is best to treat this condition for a few days with antibiotics, douches, and Furacin suppositories before electro-cauterization is done; otherwise parametritis may result. Cauterization is best done in a linear radial manner, with the nasal cautery tip, and cysts are punc-

tured with the tip. The vagina and cervix should be thoroughly cleansed, dried, and painted with an antiseptic solution prior to cauterization.

Disorders of Bleeding

Many women come to the surgeon with complaints of disturbances of menstrual bleeding. To determine the cause and the rationale of treatment it would be wise to review briefly the physiology of menstruation. Under the influence of the follicle-stimulating hormone of the anterior pituitary gland, the ovarian follicle begins to mature immediately after the cessation of a menstrual period. The follicle gives off increasing amounts of estrogen, which produces its characteristic growth effect upon the endometrium. Ovulation takes place at approximately the mid-interval, and the corpus luteum develops under the influence of the luteinizing hormone of the pituitary, with the production of progesterone. This hormone increases the thickness and secretory activity of the endometrial cells. About four to six days before the onset of the next bleeding period the corpus luteum begins to regress, and, with the decrease in production of progesterone, the endometrium sloughs off, and menstruation has begun.

Amenorrhea

The premenopausal patient, usually in the thirties, who, having had normal periods, begins to have scant periods or none at all, usually has ceased to ovulate because of disturbances in the pituitary ovarian relationship. If organic causes—such as anemia, cervical stenosis, cystic ovaries, nephritis, and so forth—can be excluded, it is wise to give these patients cyclic hormonal therapy in an effort to reproduce the ovarian hormone pattern, whereby there is bleeding from a progestational endometrium. A satisfactory program would be Premarin (conjugated equine estrogens), 3.75 mg. given daily in divided doses for 20 days. During the last five days progesterone should be given and can be satisfactorily supplied in the form of vaginal suppositories, 25 mg. a day. Within three to four days after cessation of treatment, withdrawal bleeding starts. The course of treatment is repeated for a total of four cycles, beginning on the fifth day of bleeding, and, provided the patient's en-

dometrium is not absent or has been destroyed by a too enthusiastic curettage previously, normal menses spontaneously recurs in many cases.

Functional uterine bleeding

This condition can be defined as abnormal or excessive uterine bleeding which results from physiologic disturbances rather than pathologic processes. Aside from pathologic processes, irregular or excessive bleeding is usually caused by failure of ovulation and the persistence of an unruptured follicle. This follicle continues to produce high levels of estrogens, which in turn, in the absence of progesterone, continue to stimulate the endometrium until it becomes hyperplastic. Tension in the follicle is said to produce atrophy of the granulosa cells, leading to decreased estrogen production and fluctuating levels, with resulting irregular or prolonged withdrawal bleeding from spotty shedding of the endometrium. Cases of functional bleeding can be broken down into three categories based on the age of the patient:

Adolescence. In the adolescent girl, abnormal uterine bleeding is almost always functional. However, every teen age girl who continues to have irregular bleeding should be examined very carefully, under anesthesia if necessary. One to two grains of thyroid daily, will regulate many patients. If this is insufficient, 25 mg. of progesterone every two days for two to three doses and repeated at four-week intervals may help others.

Child-bearing age. Women in the child-bearing-age who have regular cyclic menses but bleed very profusely the first two to three days and pass large clots have hypermenorrhea. Fifty per cent of these women can be helped with thyroid—1 to 1½ grains daily. Others can be helped by giving androgens in the form of methyltestosterone tablets, 10 mg. given three times a day for seven days, beginning on the eighth day of the cycle.

In those cases of ovulatory failure where there is daily or almost daily bleeding for two to six weeks owing to hyperestrogenism, with the production of hyperplastic or proliferative endometrium, various forms of hormonal therapy are effective. One to three grains of thyroid given daily for several

months may help. In others, progesterone alone will insure complete shedding of the hyperplastic endometrium. Without progesterone, it will slough irregularly as it outgrows its blood supply. This can be given as 25 mg. vaginal suppositories every day for five days, with withdrawal bleeding occurring in four to five days. Therapy should be repeated in four weeks.

Cyclic administration of estrogen and progesterone is widely accepted as therapy in functional bleeding. Oral Premarin in doses of 3.75 to 7.5 mg. daily usually controls bleeding in two to five days. This is continued for a total of 20 days, and progesterone is given in 25 mg. vaginal suppositories daily for the last five days of the cycle. The cycle is begun again on the fourth or fifth day of bleeding, and continued through three or four cycles.

When bleeding is severe, it may be necessary to give estrogens intravenously for rapid control of hemorrhage. Twenty milligrams of Premarin given intravenously will usually stop bleeding in four to six hours. If not, it may be repeated in 6 to 12 hours. At the same time, cyclic oral therapy is begun with Premarin and progesterone and continued for several months.

Androgenic therapy will also control bleeding rapidly in many cases, supposedly by inhibiting gonadotropic activity with suppression of graafian follicle maturation resulting in decreased estrogenic production. Combinations of estrogens, androgens, and progesterone are also available for parenteral use in controlling functional bleeding, and are said to be highly effective.

Another substance which is helpful in many cases of bleeding is toluidine blue (Blutene). This is not a hormone, but acts by neutralizing certain heparin-like substances which appear in the blood tissues of many menorrhagic women.

Menopause. Unusual bleeding at the time of the menopause necessitates dilatation and curettage. If the curettements show hyperplastic endometrium, androgenic therapy is indicated. This is preferred to estrogenic therapy, because the menopause should not be prolonged.

Other Menstrual and Menopausal Complaints

During the seven to ten days before the onset of menstruation many women com-

plain of tension, irritability, headache, abdominal swelling, nausea, and depression. These symptoms are thought to be due to water and salt retention, presumably resulting from hormonal imbalance involving the antidiuretic hormone of the posterior pituitary gland. These symptoms may be alleviated by restricting fluid intake for the two weeks before menstruation and giving ammonium chloride. Small doses of androgens for the last seven days of the cycle are frequently beneficial. A proprietary preparation called "M-Minus-5," containing pamabrom, is said to be quite effectual, as are "Pre-mens," containing ammonium chloride, homatropine, and amphetamine.

Dysmenorrhea is due to spasmodic or painful uterine contractions. Secondary dysmenorrhea which begins after months or years of normal menstruation is usually due to some organic cause, for which a search is indicated. Primary or functional dysmenorrhea will improve after marriage and will be cured by pregnancy and childbirth. Antispasmodics such as belladonna, Trasentine, and benzedrine are helpful in relieving symptoms. Edrisal, containing benzedrine and salicylates, will relieve depression and cramps. Dimethylane, by blocking interneural transmission, decreases muscle tone as it relieves cramps. Androgens may be used in small doses to reduce uterine irritability.

A majority of women experience some symptoms at the time of menopause—vasomotor, with hot flashes, cold shivers, headaches, and so forth; mental—as, for example, irritability; or personality changes, with depression and anxiety. The replacement of estrogens is needed in some patients, but small doses rather than full replacement therapy should be used. Conjugated equine estrogens such as Premarin is effective in doses of 0.625 mg. given daily for 20 days; treatment is then stopped for 10 days and then resumed, to be continued for a total of from four to six months. This small dose relieves symptoms but avoids undue uterine stimulation and bleeding. If larger doses are needed initially, they should soon be reduced. Androgens can be useful in menopausal menorrhagia or metrorrhagia, where bleeding follows hormonal therapy, or where there is a familial history of carcinoma of the reproduc-

tive organs or breasts. Oreton (methyltestosterone) can be given orally, but should be limited to less than 300 mg. per month.

Backache is occasionally due to retroversion of the uterus, with resulting congestion of the uterus and pelvic organs. This retrodisplacement may be corrected in the

office by use of the Smith-Hodge pessary. If this procedure cures the backache, it indicates the advisability of uterine suspension. In older women with complete uterine prolapse the ring-type pessary is very effective.

Unilateral Triplet Tubal Pregnancy

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BADIN

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ALBEMARLE

Multiple ectopic gestation is occasionally reported. This obstetric anomaly usually consists of twins, either in one sac or as a bilateral tubal pregnancy. Launay⁽¹⁾ and Baldwin⁽²⁾ have each reported a case of unilateral tubal twins with a simultaneous contralateral fetus.

Unilateral triplet tubal pregnancy has been reported twice. In 1902 Krusen⁽³⁾, at operation, found a ruptured gestation sac in the right tube. In the blood and clots from the abdomen he found three fetuses of approximately two months' gestation. Diamant⁽⁴⁾, in 1914, found in the cul-de-sac of a patient three fetuses measuring 3 cm. in length which had been aborted from a ruptured right tube.

A case of triplet pregnancy was reported by Vine⁽⁵⁾ in 1941. No abnormality of either tube was found, but a placental mass was present at the fimbriated end of the right tube, and three fetuses measuring 3 cm. each were found in the blood which filled the abdomen.

Our report concerns a case of unilateral triplet tubal pregnancy in which the surgical specimen consisted of a gestation sac containing three fetuses, their umbilical cords and membranes.

Case Report

A 27 year old divorced, nulliparous Negro housekeeper, who had been in good health until one week prior to an office visit on

January 4, 1955, complained of recurrent nausea and vomiting associated with dull, aching lower abdominal pain. Her last menstrual period had begun on December 23, 1954, and had been normal. The previous period had begun November 10, 1954. There had been no other genital bleeding.

Pertinent physical findings were confined to the lower abdomen and pelvis. There was moderate discomfort on deep palpation in the left lower quadrant of the abdomen, and definite but less marked tenderness in the right lower quadrant, but there was no muscle spasm or rebound tenderness. Pelvic examination revealed a marital introitus with good support, normal Bartholin's glands, urethral orifice and Skene's ducts, a moderate amount of mucopurulent exudate in the vagina, and a clean nulliparous cervix which was markedly tender to manipulation. The fundus was anterior, symmetrical, and not enlarged. A mass was palpable in the left adnexal region, but was not definitely outlined because of tenderness. The right adnexal region was less tender, and no structures were palpable. Urinalysis was normal, hemoglobin was 10.5 Gm., and a red blood count was 3,800,000. The blood pressure was 118 systolic, 70 diastolic.

Since the patient did not wish to be hospitalized, she was given antibiotics and analgesics for a possible gonococcal etiology of her troubles. She returned three days later to say that she had been free of symptoms



Fig. 1 Portion of the left oviduct containing triplets.

until that morning, when aching lower abdominal pain gradually increased to moderate severity. Physical findings were essentially the same. Four days later she was admitted to the Stanly County Hospital for observation. At noon on the first hospital day she had a sudden sharp pain in the abdomen, vomited, and was found to be in mild shock and to have a silent, boardlike abdomen with rebound tenderness. The hemoglobin was 7.0 Gm., red blood count was 2,700,000, and a fluctuant mass was present in the cul-de-sac.

Under cyclopropane and oxygen anesthesia the abdomen was opened through a low midline incision. Approximately 1,500 cc. of blood and clots were in the abdomen. A mass in the distal third of the left oviduct was surrounded by clotted blood. The right tube appeared normal. A left salpingectomy was done. The patient made an uneventful recovery.

Pathology

The surgical specimen was a shaggy red fallopian tube that measured 8 cm. in length and, except at the immediate line of resection, was enlarged to a diameter of 4 cm. The wall was intact save for an irregular laceration 1 cm. long in the midportion near the mesosalpinx, through which placental tissue extruded. The fimbriated end was

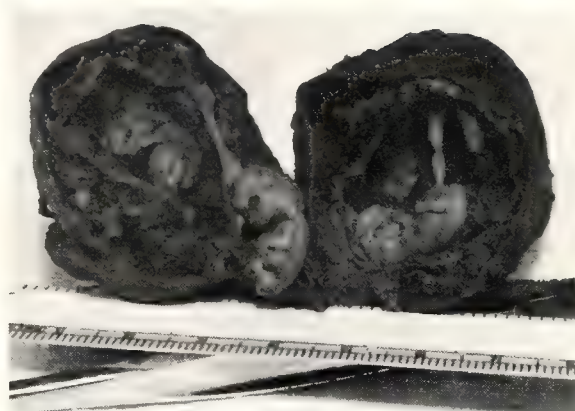


Fig. 2 Gestation sac opened, showing fetuses.

sealed by clot and placental tissue. In the region of the laceration a soft area was palpable, and an opening was made there into a single membranous sac which measured 3.5 cm. at the widest point. The sac contained three fetuses attached to the membrane by umbilical cords. Two of the fetuses were well preserved, and measured 1.3 cm. in length. The third fetus was slightly macerated and somewhat smaller. The retinas were pigmented, and finger rays were recognizable. Fetal age was about 6 weeks. No further dissection of the specimen was attempted.

Summary

The literature revealed 3 cases of unilateral triplet pregnancy; 2 of these were tubal pregnancies, and the third was an abdominal pregnancy, all ending in intra-abdominal abortion. No report was found of a previous case of ectopic pregnancy in which the surgical specimen contained intact the apparently normal products of a 6-week triplet gestation.

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A Practical Approach to the Treatment of Hemolytic Disease of the Newborn by the Exchange Transfusion

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Today there is a tremendous output of articles on various aspects of hemolytic disease of the newborn—some good, some bad, and many unnecessary. Since this flood of literature tends to confuse the average pediatrician, I would like to state simply some of the important facts which have stood the test of time and the experience of those in a position to form first-rate opinions.

Definitions

By hemolytic disease of the newborn I mean that condition in which the life span of the infant's red blood cells has been shortened by the action of specific iso-antibodies derived from the mother by placental transfer.

In the excellent booklet on Erythroblastosis Fetalis, giving the high points of the Seventh M & R Pediatric Research Conference, Dr. Fred Allen, in the Editor's Note, lists six cardinal features for nurses to remember. These points, which physicians also should keep in mind, are as follows:

1. So far as one can tell in advance, any baby may have erythroblastosis, whether or not the mother is Rh-negative.
2. Jaundice appearing before 24 hours of age is always abnormal, and almost always means that the infant has erythroblastosis.
3. Jaundice of skin or scleras is not present at the moment of birth, even in severe erythroblastosis.
4. When jaundice is discovered before about 36 hours of age, it must be investigated immediately.
5. Jaundice will not be detected in the crucial first few hours of life unless it is looked for specifically.
6. Severe jaundice, and brain damage, are preventable by exchange transfusions of compatible blood.

A few years ago it would have been necessary to defend this procedure; now, however, leading pediatricians throughout the world accept this exchange procedure as the correct method of treating hemolytic disease of the newborn.

The obstetrician and pediatrician should work closely as a team. Each has specific responsibilities. The obstetrician should:

1. Do ABO and Rh typing of all pregnant women, and antibody titers on those found to be Rh negative.
2. Discuss the matter with the pediatrician before the time of delivery.
3. Call the pediatrician during the second stage of labor and at birth if he is not on the scene at that time.
4. Have the mother's serum available for matching in case of a high maternal antibody titer.

The pediatrician should:

1. Be present at the deliveries of Rh negative women, or as soon after birth as possible.
2. Be personally responsible for necessary blood work, including the Coombs test, cord hemoglobin, cord bilirubin or other tests which may seem essential in individual cases. It is not enough to fill out request forms!
3. Be prepared to carry out immediate exchange transfusion or contact someone who can do the job.

Indications for the exchange transfusion should be standardized as much as possible. In addition to a positive Coombs test (which may be negative in the ABO hemolytic disease) the following factors are significant:

1. A cord hemoglobin of less than 15 Gm. (blood drawn from venipuncture of the umbilical vein using a dry syringe)
2. Previous kernicterus
3. A maternal titer of 1:64 or higher
4. Less than 38 weeks' gestation
5. Clinical signs such as pallor or enlarged liver or spleen.

With the use of these criteria, about 80 per cent of the patients with a positive Coombs test need an exchange transfusion. Regarding the procedure itself, there are several points worth mentioning:

1. The baby should be in a heated crib with oxygen and suction apparatus readily available.

2. A No. 10 French catheter should be in the stomach during the entire procedure.

3. Adequate but not tight restraints should be used.

4. Blood should be warmed to at least room temperature and to 98 F. if possible.

5. A team of four is needed: a pediatrician; a graduate nurse assistant, such as an anesthetist, to observe the baby; another assistant who may be anyone who can follow instructions without question (a student nurse is usually available and is excellent in this role); a circulating nurse on call at all times.

6. Equipment should be simple. A polyethylene No. 8 French infant gavage tube serves well. Use of the umbilical vein is unquestionably easiest. This vein can be entered easily up to one week. The cord should be cut off flush to $\frac{1}{2}$ inch and the vein then probed with a blunt probe. One must know the exact location of the tip of the polyethylene tube, and for this purpose a small black silk suture tied around the tube 7 cm. from the tip is excellent.

7. In withdrawing blood there is no substitute for experience; however, such little devices as caudal traction on hemostats clamped at the umbilical site can save valuable time. The tip also may be withdrawn or extended 1 or 2 cm. and rotation may also be helpful.

8. A close check must be kept on venous pressure throughout the procedure, and about a 20 to 40 cc. deficit in blood is generally desirable.

9. About three times during the procedure a 10 per cent solution of calcium gluconate should be injected with extreme care. The polyethylene tube must be cleared with 1 or 2 cc. of normal saline, and then 2 cc. of the calcium gluconate injected at a rate of about 1 cc. per minute, depending on accurate heart rate readings. When the heart rate slows, it is best to proceed with extreme caution. ST electrocardiographic changes indicate the possibil-

ity of a real need for this time-consuming and dangerous procedure; however, it is interesting to note that it is not done by one large group in Australia.

After the procedure care must be taken to see that the baby's temperature is normal or appropriate means be taken to bring it to normal. A personal procedure well worth remembering is to take the baby by the mother's room on the way back from the nursery (the procedure is probably best carried out in a delivery room).

Orders for postoperative care should include:

1. One hundred thousand units of aqueous penicillin every 12 hours for 3 days

2. Twenty-five milligrams of streptomycin (never dihydrostreptomycin) every 12 hours

3. N. P. O. for 24 hours.

There is no reason for not nursing. The ban against nursing of a few years ago is definitely outmoded.

One must follow serum bilirubin determinations closely (at least daily) and be prepared to carry out a second exchange transfusion if the bilirubin level reaches 20 mg. per 100 cc. If packed cells were not used in the exchange transfusion, a simple transfusion of 10 cc. per pound by scalp vein on the fifth or sixth day will probably be needed, unless the hemoglobin level is more than 12.0 Gm.

Illustrative Cases

Four recent cases point up some of the important and practical problems in this important disease.

Case 1

A baby girl was born at Charlotte Memorial Hospital in March, 1954. The mother had had one normal pregnancy previously, and delivered an Rh-negative boy, showing that the father, who was typed as Rh positive, was Rh positive heterozygous. During this hospital stay the mother received two transfusions of Rh-positive blood. The second pregnancy, which should have been normal, resulted in a severely erythroblastotic girl. It was necessary to carry out a second exchange transfusion on the second day (the first one was done soon after birth) in order to keep the bilirubin safely below a level of 20.

Case 2

A baby girl was born at Charlotte Memorial Hospital in April, 1954. This case was also the result of mismatched blood. Following the mother's first pregnancy, which resulted in a miscarriage, she

had received Rh positive blood. The second pregnancy resulted in a severely diseased infant who lived only five hours. The third pregnancy resulted in a baby much like the second; however, prompt exchange was effective, and a second transfusion was not required. A simple transfusion six weeks later was needed because of a fall in the hemoglobin to 6.5 Gm.

Case 3

A baby boy was born at Presbyterian hospital in December, 1954. This was the first pregnancy for this Rh-negative woman. There was no history of past transfusion. The infant, seen shortly after birth, was severely diseased, with an enlarged big liver and spleen, and was jaundiced even at one hour. In view of a strongly positive Coombs test, a cord hemoglobin of 9.0 Gm., and the clinical signs, an immediate exchange transfusion was carried out. On the next day it was learned that as a little girl of 3 the mother had received blood intramuscularly as prophylaxis against exposure to measles.

This case clearly points up the folly of trying to ignore any Rh-negative woman. As a matter of fact, all newborn infants should be followed closely during the first few hours in order to detect hemolytic disease of newborn, if present.

Case 4

A baby was born at Charlotte Memorial Hospital in February, 1955. This infant was first examined at 26 hours of age. (All infants should be examined much earlier.) Jaundice had been noted by the mother at 15 hours of age. The mother's blood was typed as Rh, CDE homozygous, while the father's was cde homozygous. A Coombs test done on the infant was positive (this test will detect all but the ABO system of erythroblastosis), and the serum bilirubin at 26 hours was 12.0. Watchful waiting was the policy (a bad one in this case), and on the fifth day a replacement transfusion was carried out and repeated the next day, because of the rise in bilirubin.

This case was proved to be due to the little c factor, and illustrates the error of overlooking this important disease just because the mother is Rh-positive.

Conclusion

Nothing but extreme diligence on the part of obstetrician, pediatrician, and general practitioner, can reduce this needless loss of life and the tragic, preventable complications of kernicterus.

Repeated Poisonous Snakebites in the Same Patient

An Unusual Case Report

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Poisonous snakebites are by no means rare in this country. It has been estimated that there are 2,000 to 3,000 snakebite accidents per year in the United States, of which, without specific treatment, from 10 to 35 per cent are fatal⁽¹⁾. Andrews and Pollard⁽²⁾ have estimated that 100 cases of snakebite occur in Florida each year. Do Amaral⁽³⁾ estimated that 40,000 to 50,000

human beings throughout the world succumb annually from snakebite. In India alone at least 20,000 persons and 60,000 cattle die each year from ophidic accidents. Poisonous snakes kill more human beings throughout the world than do all other wild animals combined.

The purpose of this paper is to report the history of an unusual patient who has survived the bites of 10 poisonous snakes. The literature contains numerous reports of individuals being bitten several times by the same snake before they could either kill it or move away; however, there are no reports of one individual's being bitten by a number of poisonous snakes over a period of years.

Presented at the Symposium on Snakebite Treatment sponsored by the Bowman Gray Medical Society and the Wyeth Laboratories of Philadelphia, Winston-Salem, N. C., August 22, 1955.

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Table 1

Analysis of Ten Poisonous Snakebites in One Patient

No.	Year	Place	Kind of Snake	Size	Location of Bite	Symptoms
1.	1940	milking pit	<i>Crotalus atrox</i> (western rattlesnake)	(feet) 5½	Between left index and middle finger	Pain and local swelling in 5 minutes, later swelling to axilla with adenopathy
2.	1941	milking pit	<i>Akistrodon mokasen</i> (copperhead)	2	left little finger	Minimal pain, later swelling of dorsum of left hand
3.	1943	milking pit	<i>C. atrox</i>	3	1 fang in each left ring and middle finger	Local pain within 15 minutes, swelling to the elbow
4.	1944	woods	<i>C. adamanteus</i> (eastern diamond back rattlesnake)	5	Web between the thumb and index finger, left	Swelling and pain almost immediately; motor paralysis in 30 minutes; weakness; later swelling covering entire arm, scapular and pectoral regions on the left; residual gangrene and necrosis of palmar surface of thumb
5.	1945	woods	<i>A. piscivorus</i> (cottonmouth moccasin)	3	Right leg above knee, 1 fang mark	Minimal local swelling which subsided in 2 days
6.	1946	milking pit	<i>C. adamanteus</i>		Through pants on leg above boot	Minimal local swelling
7.	1947	woods, S.A.	South American yellow owl snake (<i>Coniophanes</i> sp.)	2	Index finger	Local stinging
8.	1947	milking pit	<i>C. atrox</i>	5	Through pants on leg above boot	Minimal local swelling
9.	1949	milking pit	<i>A. piscivorus</i> (cottonmouth moccasin)	2	Right index finger	Minimal local swelling
10.	1952	milking pit	<i>C. adamanteus</i> (eastern diamond back rattlesnake)	6	Right thigh just behind and lateral to knee	Local and generalized numbness and muscular twitching; motor paralysis and weakness; later local pain and swelling with discoloration of tissue; long convalescent period with stiffness and soreness of involved extremity

Repeated snakebites may be considered an occupational disease among professional and amateur herpetologists, museum curators and helpers, and religious faddists who use poisonous snakes as a part of their ceremonial regalia. Such wounds constitute a semi-occupational hazard among hunters, campers, lumbermen, and agricultural field workers.

The poisonous snakes found within the United States include the pit vipers (cottonmouth and copperhead moccasins and 26 kinds of rattlesnakes) and the coral snakes. One or more species of poisonous snakes inhabit every state in this country. The venom of the coral snake is primarily a neurotoxin, whereas that of the pit vipers

is primarily a hemotoxin. The most dangerous snakes in this country are the eastern diamondback rattlesnake (*Crotalus adamanteus*) and the western diamondback rattlesnake (*Crotalus atrox*). These pugnacious reptiles attain a length of from 6 to 8 feet and, by virtue of their size, produce an enormous amount of venom.

Factors determining the severity of a snakebite include: the species and the size of the snake; the age, weight and general condition of the patient; the location and nature of the snakebite wound (a glancing scratch as opposed to deep impregnation of the venom); and the toxicity of the venom of the specific snake. Envenomation is always more serious in children than in

Table 1 (continued)
Analysis of Ten Poisonous Snakebites in One Patient

No.	Treatment	Results	Hospitalization
1.	Immediate first aid; incision and suction (40) started in 30 minutes; 3 ampules antivenin; tetanus and gas gangrene antitoxin; MgSO ₄ compresses.	Good, no sequelae	10 days
2.	Immediate first aid; incision and suction; MgSO ₄ compresses	Good	None
3.	Immediate first aid; incision and suction; tetanus and gas gangrene antitoxin; MgSO ₄ compresses	Good	1 day (?)
4.	Immediate first aid; incision and suction (50); MgSO ₄ compresses; tetanus and gas gangrene antitoxin; (4) ampules antivenin; 2,000 cc. whole blood; 250 cc. plasma; 2,500-3,000 cc. I. V. fluids daily; sulfadiazine, 4.0 Gm. daily.	Dry gangrene of left thumb, with necrosis of tissue	10 days in hospital; 14 days in bed at home; 6 weeks before able to return to work; unable to use thumb for 4-5 months.
5.	Immediate first aid; incision and suction (1).	Good	None
6.	Immediate first aid	Good	None
7.	None	Good	None
8.	Immediate first aid	Good	None
9.	Immediate first aid; incision and suction (1)	Good	None
10.	Immediate first aid; incision and suction (1); incision and suction (5); 2,000 cc. whole blood; tetanus and gas gangrene antitoxin; 2,500 cc. I. V. fluids daily; ice packs to involved extremity 8 days; Benadryl 25 mg. t.i.d.; (5) ampules antivenin; morphine, and barbiturates, p.r.n.; antibiotics.	Good, with no local necrosis; incomplete use of leg for 4 months, but eventually complete recovery; residual edema in leg.	22 days in hospital; 102 days limited activity at home; complete recovery in 4 months.

adults, as the ratio of units of venom injected to units of body weight is much greater.

Two concepts regarding the results of repeated poisonous snakebites are commonly held: (1) that repeated envenomation will render the victim immune and lessen the danger of future bites; (2) that the individual will develop a sensitivity to the complex proteins of the venom, rendering each succeeding bite more dangerous and inviting the possibility of an anaphylactic reaction. The present case report would seem to disprove both theories.

The patient, a professional herpetologist, collects and milks poisonous snakes of their venom, which has various scientific uses including the production of antivenin. He

has received a total of 10 bites by poisonous snakes; 9 were by North American pit vipers and one by a South American night crawler. The victim identified each snake, noting its size and species, as well as his own subjective reaction to the venom. One of us (H.F.W.) treated the patient for four of the bites, the most severe of which occurred in 1952 and has been previously reported⁽⁴⁾.

Rather than report each bite in detail, we felt that ample information concerning the course and management of snake envenomation could be obtained by reporting one serious case which caused both severe local and systemic effects. Pertinent information concerning each of the 10 snakebites has been summarized in table 1.

Case Report

On February 26, 1944, a 35 year old professional herpetologist was admitted to the Munroe Memorial Hospital, Ocala, Florida with a chief complaint of "snakebite." The patient related his present illness as follows: "I was on my routine trip to visit hunters in the western part of the state, to collect and buy their snakes, from which we extract venom. At the first stop, a man had a 5-foot eastern diamondback rattlesnake in a small box. I dumped the snake onto the ground, then placed my snake hook on its head. As the snake had struck viciously several times, I kept my feet out of range and leaned over to grasp him behind the head. Just as I was about to seize him, my foot slipped, causing the snake hook to slip back on the snake's neck, allowing his head enough freedom to bite sidewise. He succeeded in sinking his fangs into the base of my left thumb. I finished securing the snake, then began first aid treatment.

"I applied a tourniquet to my wrist and cut my hand open in three places. Two passengers, who luckily happened to be with me for the ride, drove me 2 miles out of the wood to the paved road and then the 27 miles to Ocala. The venom spread so rapidly that in 15 minutes I could feel the effects. In 30 minutes I was unable to move my hands or legs. In spite of first aid treatment, when I arrived at the hospital I was totally helpless and able only to talk."

The patient was admitted to the hospital approximately 45 minutes after receiving the bite. Physical examination revealed a well developed muscular white male in acute pain. He was unable to walk or coordinate his movements owing to the toxic effects of the venom. The physical examination was unremarkable except for two puncture marks at the base of his left thumb and extensive edema of the left hand, extending to a level just above the wrist. The vital signs were as follows: temperature 98.2 F.; pulse 90; respiration 20, and blood pressure 100 systolic, 80 diastolic.

On admission the patient was given 250 cc. of blood plasma intravenously. Six additional cruciform incisions were made on the forearm and suction was applied. Thirty cubic centimeters of antivenin were then injected intramuscularly, 5 cc. at the site of the fang marks and the remaining 25 cc. in the buttocks. As soon as blood was available, the patient was given 500 cc. intravenously. Morphine sulfate, 10 mg., was given hypodermically to alleviate the intense pain at the site of the wound. The tourniquet was released at intervals of 20 minutes to restore circulation to the involved extremity, and additional cruciate incisions were made as the swelling advanced up the arm. The patient received a total of 50 cruciform incisions from the site of the bite up to a level halfway between the elbow and the axilla.

Five hours after the accident the swelling had advanced to the axilla and the arm was swollen

twice its normal size. Suction was maintained for 20 minutes out of an hour, and during the interim the wounds were bathed with magnesium sulfate compresses. Suction was continued in this manner for 14 hours. Tetanus and gas gangrene antitoxin were administered daily for three days. Twenty-four hours after the snakebite the swelling had spread to the left scapular, pectoral, and cervical regions. Muscular twitching was observed primarily in the involved extremity and in the facial muscles for five days.

On admission the hemoglobin was 88 per cent, red blood cell count 4,600,000, and white blood count 20,000. The urine had a specific gravity of 1.022 and was negative for albumin. In spite of the 2,000 cc. of whole blood which the patient received during his hospitalization, his hemoglobin did not rise above 90 per cent. Repeated daily urinalyses remained within normal limits. There was no clinical or laboratory evidence of jaundice.

The patient was maintained on 3,000 cc. of intravenous fluids and 6 Gm. of sulfadiazine daily. The patient's general condition remained serious, his temperature fluctuating from 100 to 102 degrees, until the fifth hospital day, when he showed signs of improvement. On the sixth day dry gangrene involving the thumb was noted, and was followed by sloughing of necrotic tissue. The patient was discharged from the hospital 10 days after admission, but remained at home in bed an additional 14 days. He was unable to resume his normal activities for six weeks following this severe episode of snake venom poisoning. The thumb gradually healed, but is permanently atrophied and limited in motion.

Comment

This patient has survived the bites of 6 rattlesnakes, 2 cottonmouth moccasins, 1 copperhead moccasin and 1 South American night crawler, or the bites of every kind of poisonous snake in the United States with the exception of the coral snake. Three of these bites were severely toxic, producing both local and systemic effects; 2 were moderately toxic, with extensive local effects, and the remaining 5 were minor, causing only minimal local effects. It is of interest to note that the two most serious bites (nos. 4 and 10) were by eastern diamondback rattlesnakes (*Crotalus adamanteus*), the most deadly snakes in this country. The patient required from four to five months to recover completely from each of these serious bites.

There is no evidence in this case study that immunity results from repeated bites by North American pit vipers. On the other hand, there is no evidence that sensitivity to the venom develops or that subsequent

snakebites are necessarily more dangerous. Experimental work with horses (from which antivenin is obtained) has shown snake venom to be a poor antigen. It must be given to horses repeatedly over a prolonged period in order to build up a high titer of antibodies. The prolonged interval between bites probably contribute to the lack of immunity in this patient.

Immediate pain at the fang site is not a consistently reliable symptom of severe envenomation, as the two most serious snakebites encountered by this patient were manifested by numbness and paralysis rather than pain. Thus early neurologic signs and symptoms are an unfavorable prognostic sign. Early swelling of the bitten area is a fairly reliable sign of pit viper envenomation.

This case confirms the value of immediate first aid measures in the treatment of snakebites. Anemia, secondary to severe intoxication by snake venom, should be adequately corrected with transfusions of whole blood. Less pain and local tissue necrosis were observed when ice packs were applied to the involved area. Large doses of antivenin (4 to 8 ampules) should be administered to all patients with serious snakebites.

Recent Trends in Snakebite Therapy

The accepted local therapy for snakebite wounds is the immediate application of a tourniquet above the site of the bite and incision of the skin over the fang sites. Suction should be employed to remove as much venom as possible. This may be performed by suction cups or orally if no other means is accessible. The tourniquet should be advanced up the extremity as the swelling spreads, and it should be released for three to five minutes every 20 minutes to allow for adequate circulation. The tourniquet should be applied only tight enough to impede superficial venous and lymphatic flow. Additional cruciate incisions should be made as the swelling advances, and suction should be continued for 12 to 18 hours in severe cases. Jackson⁽⁵⁾ has demonstrated survival in dogs given 4 M.L.D.'s (minimum lethal dose) of venom when treated in this manner. Parrish⁽⁶⁾ has recently shown experimentally that more venom can be removed by wide excision and suction if the victim is treated within 60 minutes after the bite.

He does not offer this form of treatment as a substitute for the Jackson method, but suggests that it may be lifesaving if the guilty reptile is a large one or if the bite is on the trunk where tourniquets are ineffective. Andrews and Pollard⁽²⁾ found ice packs effective in preventing pain, necrosis, and gangrene.

"The 3 A's" (antivenin, antitoxin and antibiotics) should be administered to all patients bitten by poisonous snakes. A new polyvalent "antivenin" recently developed by Wyeth Laboratories offers a high degree of protection against the toxic components of pit viper venom, and an antivenom for coral snake bites is now available. Jackson⁽⁷⁾ has found gas gangrene organisms in snake's mouths, and suggested that the bacterial flora of snakebite wounds may contribute to necrosis and gangrene of the involved extremity. One of us (H.M.P.) has demonstrated an abundance of gram-negative rods and coliform organisms in both the oral cavity and venomous glands of North American pit vipers; hence the use of a wide spectrum antibiotic is recommended. Since snakebite wounds are contaminated puncture wounds, tetanus antitoxin and/or toxoid and gas gangrene antitoxin should be given routinely.

Systemic therapy has been improved by the early use of blood plasma and transfusions of whole blood to avert shock and anemia, invariable components of severe poisonous snakebites. Morphine and barbiturates are recommended for analgesia and sedation, as severe pain is often encountered. Cortisone has recently been recommended in the treatment of snakebite wounds⁽⁸⁾, but Allam, Weiner and Lukens⁽⁹⁾ did not find that it significantly reduced mortality in dogs poisoned by snake venom. Supportive treatment, such as cortisone or an antihistaminic drug, may be given to reduce the possibility of a serum sensitivity reaction. Cortisone and ACTH seem to be effective in alleviating pain associated with snakebite.

Summary

1. The case history of an unusual patient surviving the bites of 10 poisonous snakes over a 12-year period is summarized. Three of the snakebites were severely toxic, producing marked local and systemic symptoms; two were moderately toxic, with pro-

nounced local symptoms, and the remaining five were minor, with only minimal local symptoms.

2. There is no evidence from this case study that either immunity or sensitivity to snake venom develops as a result of repeated bites.

3. Recent improvements in snakebite therapy are discussed and "the 3 A's" of envenomation treatment (antivenin, antitoxin and antibiotics) are recommended.

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Some Problems of a Part-Time Anesthetist

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The problems which daily confront the anesthetist are many and varied. They are greater and more perplexing to the part-time anesthetist, whose formal training in anesthesia has been less extensive than that of the anesthesiologist. Either from a shortage of anesthetists in the community or a genuine interest in the field, many general practitioners find themselves engaged in part-time anesthesia. The general practitioner who does so has difficulty in keeping abreast of the rapid advances in this field. Perhaps he could be helped by appropriate courses of instruction which might be made available at the teaching institutions in this state.

For me, anesthesia has been a pleasant, yet exacting part of the practice of medicine. With this approach I will attempt to present briefly some of the impressions made upon me by the following problems: (1) anesthetic agents; (2) anesthesia equipment; (3) anesthesia in children; (4) anesthesia in the aged.

Anesthetic Agents

Before the year 1842 surgeons dulled sen-

sation before operating by giving alcoholic drinks and opiates, and by producing syncope through phlebotomy. To obtain muscular relaxation in order to facilitate the reduction of fractures and dislocations, some patients were given alcohol, emetics, and various sedatives.

In 1842 Dr. Crawford W. Long of Georgia used ether for the first time as an anesthetic agent for an operation. Since then many agents have been developed and utilized for producing anesthesia and muscular relaxation in surgery. Today the anesthetist has a choice of several agents in almost any given operation. Indeed he may use several agents in a single operation as the indications arise. Patients frequently exhibit wide differences in reaction to a given agent. Some require much more, and some require much less, than might be expected in order to obtain the desired level of anesthesia.

None of the available anesthetic agents is without danger to the patient. This thought is ever present in my mind while I am in the operating room, and it produces in me a profound sense of responsibility and concern. Often an afternoon of office practice is required to dispel the fatigue

which has developed in the morning while sitting at the head of the operating table.

The choice of agents to be used in an operation should be determined by the anesthetist mainly on the basis of his experience with, and his ability to employ the various agents safely and skillfully. In general, experience rather than the age of the patient, the presence of a heart murmur, diabetes mellitus, or the like should be the deciding factor.

Equipment

Our city has several hospitals, each with different equipment for anesthesia and surgery. One becomes familiar with the facilities at his command in order to be able to turn the proper wheel quickly or to obtain the correct drug or device promptly in an emergency. Supplies should be replenished before they are depleted. Long practice is required to regulate the different machines in using various agents. This is especially true of the machines ordinarily used in anesthesia for tonsillectomies.

Anesthesia in Children

For preoperative medication in children I believe that it is best to give a barbiturate suppository of proper dosage two hours prior to the operation, and scopolamine or atropine about one hour prior to the operation. Scopolamine is probably preferable to atropine in children, because it is less likely to produce tachycardia and has a slightly sedative action.

Before administering anesthesia to a child, one should be certain that a well functioning suction apparatus is accessible and that Trendelenburg's position can be quickly obtained. Then after a brief period of explanation and reassurance one should proceed with the induction stage in a quiet manner, being careful to avoid motion of the child's head, if possible, until the child is well asleep. In children under 11 years

of age I feel safer, as a rule, with induction by Vinethene, then using ether and oxygen throughout the operation. One further word about elective surgery in a child: admission the day before usually insures that he gets no breakfast to be vomited in the operating room.

Anesthesia in the Aged

To me the change in attitude concerning the surgical risk of elderly patients has been one of the most remarkable accomplishments of recent years. This change has been due in a large measure to new and improved anesthetic agents and techniques. Formerly it was commonplace to encounter struggling, straining, retching, and vomiting during induction. This all too often resulted in hemiplegia, pneumonia, a fracture, or some other condition referred to as an anesthetic or surgical complication. Now aged persons may undergo surgery quietly and smoothly and awaken rapidly following the operation, thereby diminishing the possibility of complications. For the average elderly patient I prefer to maintain light anesthesia with Sodium Pentothal or Surital, and oxygen. Muscle relaxants are used when indicated. In most operations on elderly people, this has made anesthesia much easier for the patient and to a large extent has solved the problem of anesthesia in the aged.

Conclusion

Some solutions to certain problems confronting a general practitioner of medicine who includes anesthesia in his work have been presented. It is felt that there is a definite need for the provision of short, practical courses in North Carolina for part-time anesthetists. This undoubtedly would create more interest in anesthesia and at the same time produce more self-confidence and efficiency in those of us already engaged in this important and fascinating field of medicine.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

APRIL, 1956

ATTITUDES AND CAREERS

An editorial in *Science* for March 16
summarizes the results of a study recently
completed by Public Opinion Surveys, for
the Department of Defense, of attitudes to-
ward 19 careers.

The data were gathered by interviewers who
asked the respondents to indicate the relative
desirability of each career by pointing to one
of ten answers, which ranged from most desir-
able (+5) to least desirable (-5). By using
such an intensity scale, it was possible to com-
pute a score for each occupation by multi-
plying each rating by the percentage (as a
whole number) of the respondents who selected
it and adding the results. If, for example, 50 per
cent rated a career +5 and the rest at +4, the
score would be 450 [that is, (5x50) + (4x50)].

The 2004 adult respondents of both sexes

rated some of the careers in the following
descending order (intensity scores in paren-
theses): physician (400), scientist (329), col-
lege professor (309), minister or priest (306),
lawyer (302), public school teacher (252), of-
ficer in the armed services (227), farm owner
or operator (221), carpenter (172), radio or
television announcer (170). The nine remaining
occupations ranged from mail carriers (140) to
sales clerk in a store (-16) and truck driver
(-27).

The 1031 males from 16 to 20 years of age
rated most careers less highly than did the
adult group. In descending order, the teen-
agers' first ten were: physician (289), scien-
tist (262), lawyer (240), college professor
(214), and officer in the armed forces (204),
minister or priest (176), radio or television
announcer (165), public school teacher (124),
farm owner or operator (122), owner of a
small store in a city (115).

It is a noteworthy coincidence that the
announcement of the generous tribute paid
Dr. E. S. Faison by three of his grateful
patients came at the same time the *Science*
editorial appeared.

* * *

THE ELIAS S. FAISON FOUNDATION

For many years the medical profession
has been a target for criticism from many
sources. One of the accusations most fre-
quently heard is that doctors have become
so coldly scientific that they are no longer
interested in their patients as people. One
redeeming feature in most of the written
and spoken complaints is that the critics
are careful to say that their own physi-
cians are exceptions. We may be thankful
that in America the patient-doctor rela-
tionship has not deteriorated as it has in
Great Britain and other countries where
the government controls medical practice.

One of the finest examples that North
Carolina—or this nation—has ever known
of the patient-doctor relationship at its
best is to be found on page 183 of this is-
sue. It is a modest announcement by Dr.
Thomas W. Baker, president of the Meck-
lenburg County Medical Society, that Mrs.
Sara H. Davis, her son-in-law and daugh-
ter, Mr. and Mrs. Harry Coggeshall, had
made provision in their wills for the estab-
lishment of a foundation to provide an in-
come for the "maintenance, operation and
upkeep" of the Mecklenburg Academy of
Medicine, which is to be built in Charlotte.

Such an Academy has been planned for months and years—and the assurance of an adequate endowment for it will almost certainly stimulate progress in its construction.

This fund is to be known as the Elias S. Faison Foundation, and is a love offering in recognition of Dr. Faison's service to all three of them. They came to know him while they were spending their vacation at Blowing Rock, and it is obvious that they learned to love him and to appreciate his worth. The fact that the amount left for the foundation amounts to three-fourths of their combined estates made the contribution all the more generous.

Almost certainly Dr. Faison could have had the generosity of his patient benefit him personally—but Mecklenburg County is fortunate that he was unselfish enough to have it used to help his fellows.

It is hard to think of a finer way for grateful patients to show their appreciation of medical skill and devotion than to make a thank offering that will benefit the whole medical profession. Mrs. Davis and Mr. and Mrs. Coggeshall are to be commended for their wisdom as well as for their generosity. Successive generations of doctors will remember them and Dr. Faison with praise and thanksgiving. In the words of the old Roman poet, they "have builded a monument more lasting than bronze."

* * *

A NATIONAL LIBRARY OF MEDICINE

It is hardly an understatement to say that, for the sake of medical progress, the most important bill Congress has had to consider in many years is S. 3430, introduced by Senators Hill of Alabama and Kennedy of Massachusetts. Its purpose is to "promote the progress of medicine and to advance the national health and welfare by creating a National Library of Medicine."

Such a library already exists in fact, if not in name. It began in 1836 as the Surgeon General's Library, and has been known since 1952 as the Armed Forces Medical Library. It contains more than 650,000 volumes and receives every year more than 5,000 medical periodicals. The Hoover Commission on Federal Medical Services described it as "today the largest and most important medical library in the world . . .

No other medical agency of the Federal Government serves the future of medical research so intimately and so widely as does this unequaled collection of books, journals and bibliographic services."

In spite of its great value both to civilian and military medicine, this priceless library has been treated like the proverbial red-headed stepchild. It is housed in woefully inadequate quarters—a veritable fire-trap, with a leaky roof. The reason given by Senator Hill, in his eloquent address introducing the bill: "The present situation finds the library without any proper legislative authorization and as part of the Military Establishment, where it does not belong, and within which it cannot hope to compete for the funds it must have."

As evidence of the truth of the statement, although the present Congress authorized the expenditure of \$350,000 to be used in drawing up plans to house the Armed Forces Medical Library, Secretary of Defense Wilson decided not to ask for this apportionment and did not include funds for the construction of the library in his 1957 budget.

Congress, in 1919, in 1938 and in 1941 had voted similar appropriations, but each time the move was blocked by action on the part of the Military Establishment.

The bill introduced by Senators Hill and Kennedy would relieve the situation, by putting the National Library of Medicine under a Board of Regents to be composed of the Surgeons General of the Army, Navy Air Force, and Public Health Service, and the Librarian of Congress, who shall be ex-officio members, and 12 individuals appointed by the President by and with the advice and consent of the Senate and without regard to political affiliation.

The American Medical Association, the American Dental, and the American Hospital Association have all strongly endorsed the proposal. Here is an opportunity to write your Senators and Representatives in support of a bill that should have the approval of everyone, regardless of political party or his attitude toward Social Security or socialized medicine. Time is of the essence in making safe a treasure which, in the words of Senator Hill, "once destroyed, not all the gold in Fort Knox could recreate."

BULLETIN BOARD

COMING MEETINGS

Medical Society of the State of North Carolina, One Hundred Second Annual Session—Pinehurst, April, 29-May 2.

Duke University Medical Alumni Luncheon during the State Meeting—The Pine Needles Club, Pinehurst, May 1.

North Carolina Public Health Association, Annual Meeting—Charlotte, May 31-June 1.

Annual Hospital Food Service Institute—North Carolina State College, Raleigh, June 13-15.

International College of Surgeons, Southeastern Regional Meeting—Read House, Chattanooga, Tennessee, April 30-May 1.

Third National Cancer Conference, sponsored by the American Cancer Society and the National Cancer Institute of the Public Health Service—Detroit, June 4-6.

American College of Chest Physicians, Twenty-Second Annual Meeting—Hotel Sherman, Chicago, June 6-10.

American Medical Association, One Hundred Fifth Annual Meeting—Chicago, June 11-15.

Symposium for General Practitioners on Tuberculosis and Other Chronic Pulmonary Diseases—Saranac Lake, New York, July 9-13.

THE ELIAS S. FAISON FOUNDATION

The announcement has been made recently by Dr. Thomas W. Baker, president of the Mecklenburg County Medical Society, of the establishment of a foundation fund in excess of half a million dollars, the income from which will be used for the "maintenance, operation and upkeep" of the proposed Mecklenburg County Academy of Medicine to be built at Charlotte.

The foundation was established by provisions in the wills of the members of one family—Mrs. Sara H. Davis, her son-in-law and daughter, Mr. and Mrs. Harry Coggeshall, all of Sarasota, Florida—and is to be known as the Elias S. Faison Foundation in honor of their personal physician. The trust provides that the income will be made available to the foundation upon the death of the last surviving member of the family.

Plans for the establishment of the Mecklenburg County Academy of Medicine were begun in early 1955, having received the endorsement of the Cabinet of the Mecklenburg County Medical Society in April of

last year. Definite plans have not been announced as yet by the Academy of Medicine Committee, headed by Dr. Faison and Dr. O. Hunter Jones, pending certain developments.

The voluntary gift of Mrs. Davis and Mr. and Mrs. Coggeshall is one of the most generous ever given by members of one family to an Academy of Medicine in this country and was termed by Dr. Baker as "one of the most significant contributions ever made to medicine in North Carolina."

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Dr. Adam T. Thorp of Rocky Mount was elected, on March 28, president of the Medical Alumni of the University of North Carolina, succeeding Dr. Verne H. Blackwelder of Lenoir.

Dr. Fred Patterson was re-elected secretary and Dr. Milton Clark of Goldsboro was advanced to president-elect of the alumni. Dr. Ralph S. Morgan of Sylva was elected vice-president.

Counselors elected were Dr. Ralph L. Pittman of Fayetteville and Dr. David L. Pressley of Statesville.

Doctors from over the state attended a day of scientific sessions at the School of Medicine.

Dr. William N. Hubbard, Jr., Fairmont, N. C. native, and member of the 1943 class, University of North Carolina School of Medicine, who is now associate dean of the New York University School of Medicine addressed the annual dinner meeting of the medical alumni. Dr. Hubbard spoke on "Current Problems in Medical Education—Some Efforts at their Solution." Dr. Hubbard is associate secretary of the Association of American Medical Colleges and an authority on medical education.

* * *

The UNC Medical Classes of 1920, 1935, 1943 (March and December) held their class reunions this year.

* * *

On Tuesday afternoon, March 27, the annual Phi Chi medical fraternity lecture was held. Dr. Franklin L. Payne ('20), professor and chairman of the Department of Obstetrics and Gynecology, University of Pennsylvania School of Medicine, was the guest speaker. Dr. Payne spoke on "The Non-Obstetric Surgical Complications During Obstetric Care."

* * *

On Tuesday evening, March 27, an annual lecture sponsored by the Lecture Committee of the University of North Carolina School of Medicine was held. The speaker was Dr. H. B. Andervont, National Institutes of Health, president of the American Society of Cancer Research.

Dr. Ernest Craige, associate professor of medicine and chief cardiologist at North Carolina Memorial Hospital, was in Kansas City, Kansas, for three days, March 19-21, teaching and lecturing in a postgraduate course on heart disease. The meeting was held at the University of Kansas Medical Center and was sponsored by the American College of Physicians.

" " "

Among recent visitors who served as visiting members of the staff and who were enjoyed by the Chapel Hill medical students were as follows:

Dr. A. Baird Hastings, head of the Department of Biological Chemistry at Harvard Medical School. Dr. Hastings was the guest of the Department of Medicine for three days during the week of March 29.

Dr. Robert F. Loeb, professor of medicine at Columbia University, New York City. Dr. Loeb is the co-editor of Cecil and Loeb's "Textbook of Medicine," widely used in medical schools throughout the United States. He is also one of the group who discovered the cause of Addison's Disease.

On February 10 the University of North Carolina Medical School had as guest professor, Dr. William B. Castle, professor of medicine at Harvard. Dr. Castle is also director of the Thorndike Memorial Laboratory at Boston City Hospital, where he continues research in his favorite field.

Another March visitor of unusual interest was Dr. J. Roswell Gallagher, chief of the Adolescent Unit at Boston Children's Hospital and assistant clinical professor of pediatrics at Harvard Medical School. As guest of the Department of Pediatrics, headed by Dr. Edward C. Curnen, he was in Chapel Hill March 6 for the Fourth Annual Program in General Medicine and made presentations of the emotional and physical problems of the teen-ager.

* * *

Dr. John Charles Cassel, South African native who is currently associate professor in the Department of Epidemiology, University of North Carolina School of Public Health, has been appointed a clinical assistant professor of medicine in the Department of Medicine, School of Medicine. He will assist in the training of medical students working in the private patient clinic.

Dr. Cassel, a graduate of the University of Witwatersrand in Johannesburg, has been in this country most of the time since 1952. He is an authority on health programs among the South African Zulus.

* * *

With spring here again, bringing the universal urge to get out and enjoy the beauty of a world re-born, there is special joy waiting many sick and crippled people on the first floor of North Carolina Memorial Hospital in Chapel Hill.

A glorified swimming pool, known as a Hubbard Tank, is waiting for those who have suffered severe

fractures and muscular disorders, critical burns with damaged muscles, the paralysis of polio, and the disabling limitations of cerebral palsy. Made of beautiful stainless steel, this extraordinary device for rehabilitation of the crippled patient is a gift from Miss Grizzelle Norfleet of Winston-Salem, who has a sympathetic understanding of the problems of the handicapped.

Another strange-looking but exceedingly effective device for work with persons undergoing long convalescence is a tilt table, designed to help prevent secondary diseases in bedridden patients. This unusual piece of equipment poignantly reminds the interesting visitor of the Biblical injunction, "Take up thy bed and walk." Appropriately enough, it was a gift of the Community Church of Chapel Hill and a grateful patient, Mrs. George Corey of Williamston.

* * *

How children grow and develop, with particular emphasis on influential endocrine factors, will be further explored at the University of North Carolina Medical School by Dr. Judson John Van Wyk whose selection as a Markle Scholar in Medical Science was announced recently. He is the fourth member of the Chapel Hill faculty to be thus honored in seven years.

Thirty thousand dollars, payable at the rate of six thousand dollars annually, will be awarded Dr. Van Wyk, assistant professor in pediatrics. He is one of twenty-three young scholars selected from medical schools throughout the United States to receive financial aid from the John and Mary R. Markle Foundation of New York City.

An endocrine laboratory, equipped for research in steroids from both their chemical and clinical aspects will be set up by Dr. Van Wyk in the medical center at Chapel Hill. He will hope to discover new facts about the relationship of the chemical substances released by glands into the blood stream which affect the rate and manner of growth in children and other allied factors.

NEWS NOTES FROM THE

DUKE UNIVERSITY SCHOOL OF MEDICINE

The American Association of the History of Medicine will hold its twenty-ninth annual meeting at Duke University and the University of North Carolina, April 19-21.

This will mark the first meeting held in the southeast by the association, which is comprised of physicians and historians from throughout the United States and Canada, as well as around the world.

Prelude to the association's 1956 meeting will be the Trent Memorial Lecture to be delivered at Duke on Wednesday night, April 18, by Dr. Chauncey Leake of Ohio State University. His talk will be sponsored by the J. C. Trent Society for the History of Medicine at Duke, established

in 1952 in honor of the late Dr. J. C. Trent, Duke thoracic surgeon and a writer and collector in the field of medical history.

High lights of the meetings will include dedication of the Trent Historical Collection to the University by Dr. John Fulton of Yale University, and the Garrison Memorial Lecture by Dr. F. N. L. Poynter, librarian of the Wellcome Historical Medical Library, London, England.

Presentation of 11 papers of a general medical historical nature and two symposiums, one on southern medicine and the other on epidemiology, will be open to the public.

The Association, founded in 1924 with Dr. Fielding H. Garrison of Washington, D. C. as president, publishes its own journal, **Bulletin of the History of Medicine**, and is devoted to studying the impact of medicine on various phases of life, and vice versa.

One of the association's leaders is Dr. Richard Shryock, former professor of history at Duke and now director of the Welch Institute of the History of Medicine at Johns Hopkins University.

Present officers are Dr. George W. Corner of the Rockefeller Institute for Medical Research, president; Dr. Benjamin Spector of Tufts Medical College, vice president; and Dr. John B. Blake of the Rockefeller Institute, secretary-treasurer.

Dr. George Rosen of Columbia University is program chairman, and Dr. D'Angelo Fellow in surgery at Duke and a founder of the J. C. Trent Society, is chairman of the local committee.

Other members of the local committee are Dean W. C. Davison, of Duke Medical School, Mrs. Mary Trent Semans, and Dr. Warner Wells and Dr. Loren C. MacKinney, both of the University of North Carolina Medical School.

* * *

Dr. James M. Kelly, of Duke University Medical School's division of orthopedic surgery, has been named a trainee of the National Institute of Arthritis and Metabolic Diseases. Dr. Lenox D. Baker, chief of the Duke orthopedic service announced recently.

Dr. Kelly will be assigned to the Duke clinic established for the study and treatment of arthritis under the joint sponsorship of the division of orthopedic surgery and the department of medicine.

Since receiving his M.D. degree at Duke in 1954 Dr. Kelly has been serving his internship at Duke Hospital, first in general surgery, and later in orthopedic surgery.

* * *

An improved technique for treating certain jaw injuries to avoid possible later complications was reported by Dr. Nicholas Georgiade, Duke University surgeon, addressing the American Society of Maxillo Facial Surgeons in New Orleans last month.

The technique involves "pinning" the hinge joint of the jaw in place with small, externally-inserted

stainless steel pins. Dr. Kenneth L. Pickrell, chief of the plastic surgery division at Duke, is co-author of the paper.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

A five-year grant of \$35,000 has been awarded to The Bowman Gray School of Medicine by the National Institute of Metabolic Diseases for graduate training. Dr. Ernest H. Yount, Jr., director of the Department of Internal Medicine, will direct the program, and emphasis will be placed on the study and teaching of metabolic diseases, particularly diabetes.

* * *

Plans are being completed to open the Mabel Kenner Amos Cottage in May. The cottage, with a capacity of 10 patients, was especially constructed to meet the needs of long-term geriatric patients, and is located near Graylyn, the neuropsychiatric center of the School of Medicine. Patients will be initially admitted to Graylyn for observation and examination before being transferred to the geriatric unit. Complete facilities for diagnosis and treatment of patients with psychiatric and neurologic disorders associated with aging will be available, and a program of rehabilitation will be followed in an effort to return as many of these patients as possible to an active and useful life.

The cottage was built with funds donated by Mr. Charles L. Amos of High Point as an honor to his wife. In accord with his wishes, the unit will be dedicated to the care and treatment, as well as the study of psychiatric conditions developing in later years of life.

* * *

Dr. Richard T. Myers, assistant professor of surgery, presented a paper "Cancer of the Breast" at the Southeastern Surgical Congress last month in Richmond.

* * *

Dr. Harold D. Green, professor of physiology and pharmacology; and Dr. Felda Hightower, associate professor of surgery, presented papers at the 1956 Lumberton Heart Symposium in March. Dr. Green's paper was titled "The Diagnosis and Treatment of Vasospastic Peripheral Vascular Disease," and Dr. Hightower presented a paper "Definitive Surgery for Complications of Peripheral Vascular Diseases." Dr. Green, Dr. Hightower, and Dr. Emery Miller, instructor in internal medicine, were on the Heart Forum panel conducted in connection with the meeting.

* * *

Dr. Martin G. Netsky, professor of neuropathology, will present a paper "Disease of the spinal cord" at the meeting of the American Academy of Neurology in St. Louis on April 23.

Dr. Robert D. Coghill, director of research of the Abbott Laboratories, presented a paper to the students and faculty on April 20, "The Development of New Drugs."

* * *

Dr. Harold Lewis of the Department of Physics of Duke University delivered the principal address at the formal installation ceremonies of the newly-organized Sigma Xi Club on April 11. The title of his paper was "Milestones in Modern Physics." Dr. Richard L. Burt, assistant professor of obstetrics and gynecology, is president of the club; Dr. Manson Meads, associate professor of preventive medicine and director of the department, is vice-president; and Dr. Norman M. Sulkin, associate professor of anatomy, is secretary-treasurer.

FOURTH ANNUAL HOSPITAL FOOD SERVICE INSTITUTE

The fourth annual Hospital Food Service Institute will be held at North Carolina State College, Raleigh, on June 13-15. The institute will be sponsored by the North Carolina Hospital Association, the North Carolina Dietetic Association, and the North Carolina State Board of Health.

Invitations will be sent to food service managers, supervisors, and administrators of 20- to 100-bed hospitals.

Registration will be limited to 55. Certificates will be granted to those with 100 per cent attendance.

KENTUCKY STATE MEDICAL ASSOCIATION

Bruce Underwood, M.D., secretary and general manager of the Kentucky State Medical Association and editor of the *Journal* resigned as of February 1 to take a position with the Department of Health Education and Welfare in Washington.

Woodford B. Troutman, M.D., Louisville, was elected by the Council of the Kentucky State Medical Association as Secretary-Editor pro tem. He assumed the office on February 1.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Dr. Murray to Assume A.M.A. Presidency In June

Formal presentation of the American Medical Association's presidential gavel to Dr. Dwight H. Murray of Napa, California, will be made at the inaugural ceremony Tuesday evening, June 12, in the grand ballroom of Chicago's Palmer House.

Plans are being completed to telecast part of the inaugural program over a local television station. Immediately following the ceremonies, a reception and ball honoring Dr. Murray will be held in the Red Lacquer Room of the Palmer House.

Civil Defense Meeting Planned

The National Medical Civil Defense Conference, sponsored annually by A.M.A.'s Council on National Defense, will be held Saturday, June 9, at Chicago's Palmer House, just prior to the opening of the one hundred fifth annual meeting.

Although final arrangements have not been completed, the Council reports that a special feature of this year's program concerns the availability and operation of the Federal Civil Defense Administration's 200-bed emergency civil defense hospital. FCDA officials will discuss basic plans dealing with the allocation, distribution and utilization of the hospital units. Staffing patterns and actual operating procedures by professional and other personnel will be discussed on the basis of data gleaned during field tests conducted in April by the Army Medical Corps at Fort Meade, Md., in which representatives of national health and medical organizations participated.

* * *

New Pamphlet on Quacks

To help the public identify some of the devices, gadgets, and machines used for so-called "treatments" or "cures" of many diseases, the A.M.A.'s Bureau of Investigation has issued a new pamphlet on mechanical quackery. This attractive three-fold leaflet describes quacks in general, contains photographs and descriptions of 10 devices or gadgets, backgrounds some of the more notorious fraud cases, and presents a check list for easier identification of quacks in the local community.

The Bureau plans to distribute the pamphlet primarily when the A.M.A. exhibit on mechanical quackery is shown at medical society meetings and public gatherings, such as health fairs, museums, state or county fairs. It also will be sent out by the Bureau in answer to mail requests for information.

* * *

See A.M.A. at Work!

The A.M.A. extends a cordial invitation to all physicians and their wives attending the annual meeting in Chicago June 11-15 to tour the Association's headquarters. Tours of the nine-story building, located at 535 North Dearborn Street at Grand Avenue, will be conducted by a corps of specially-trained guides from 9 a.m. to 4 p.m. Monday through Friday.

Within the headquarters building are housed the Association's scientific, socio-economic and administrative offices, including not only offices and meeting rooms but also fully-equipped laboratories, a medical periodical library, a complete printing plant, a film projection room and a radio recording studio. It is the hub of all Association activities, with the exception of the Washington, D. C. information office.

Special "Common Cold" Transcriptions

The American Medical Association has announced plans for sending a special "bonus" electrical transcription dealing with the common cold to all radio stations in the country which have broadcast Association health transcriptions during the past two years. The platter will have a 15-minute program on each side based on tape recordings taken at a symposium on the common cold held in February in New York by the Common Cold Foundation.

Approximately 500 discs will be distributed directly to radio stations or through 13 state distributors—the medical societies of California, Florida, Kentucky, Louisiana, Massachusetts, Michigan, New Mexico, North Carolina, Oregon, Pennsylvania, Tennessee, Texas, Virginia—and Alaska.

SYMPOSIUM FOR GENERAL PRACTITIONERS

The fifth annual Symposium for General Practitioners on Tuberculosis and other Chronic Pulmonary Disease will be held in Saranac Lake, New York, from July 9 to 13. It is approved for 26 hours of formal credit for members of American Academy of General Practice.

Sessions will be held in the various sanatoriums, hospitals, and laboratories in the Saranac Lake area. The faculty will consist of physicians, surgeons and scientists from Saranac Lake, as well as guest lecturers.

Many doctors attending previous sessions of this symposium have brought their families with them to enjoy the many vacation facilities of the surrounding Adirondack Mountains. So that families may have the use of the family car, free bus transportation will be provided to the various meeting places for the doctors attending the course. Excellent housing accommodations are available in and around Saranac Lake.

The registration fee for the Symposium is \$40.00. Further information and copies of the program can be obtained by writing Dr. Edward N. Packard, General Chairman, Symposium for General Practitioners, P. O. Box 262, Saranac Lake, New York.

CONFERENCE ON DIET AND ORAL HEALTH

A world report on new research findings will be given at the first annual Conference on Diet and Oral Health at the University of Alabama Medical Center, Birmingham, April 23-24, 1956. The conference is being sponsored by the University on the occasion of its one hundred twenty-fifth anniversary and by the following groups: the Alabama Chapter of the American Society of Dentistry for Children, the Birmingham section of the International Association for Dental Research, and the University's Sigma Psi Club, in association with the American Chicle Company, New York.

NEW JERSEY HEART ASSOCIATION

A streamlined portable Cardiac Emergency Kit has been newly developed for use by general practitioners, hospitals, ambulances and emergency rooms, and is now available at cost through the Essex County, New Jersey Heart Association. The emergency kit, ready to be completely stocked with drugs and equipment needed for treatment of cardiac emergencies, is of small dimensions and easily portable.

Of sturdy wood and leather construction, the kit is outfitted with clamps to hold 34 drugs and equipment for their use. It also contains a brief outline of diagnosis and therapy for 13 most common emergency cardiac conditions, written by Dr. Jacob J. Silverman of Staten Island, Dr. Arthur Bernstein of Newark, and Dr. Harold B. Trachtenberg of New York City. The kit is also equipped with a sign-out card for notations of such drugs as used. The drugs are mounted in such a way that their removal leaves a gap in the orderly arrangement, thus providing a reminder for replacement.

The kit, manufactured to the Heart Association's specifications by the William Bal Corporation, Newark luggage manufacturer, weighs approximately 8 pounds empty. It is 16 inches long, 12 inches deep, and six inches wide.

Orders may be placed with the Essex County Heart Association, 120 Evergreen Place, East Orange, New Jersey, and a check in the amount of \$15, payable to the William Bal Corporation, should accompany the order for the kit, which will be shipped express collect. The kit is supplied without drugs, but with complete listing of the necessary materials and medications to equip it.

PAN AMERICAN ASSOCIATION OF OPHTHALMOLOGY

Dr. Brittain F. Payne, New York, was elected president of the Pan American Association of Ophthalmology at the Fifth Pan American Congress of Ophthalmology in Santiago, Chile, January 8-14.

Dr. J. Wesley McKinney, Memphis, Tennessee, was elected executive secretary for North of Panama, succeeding Dr. Thomas D. Allen and Dr. Daniel Snyder, both of Chicago. Dr. Snyder has recently served as acting executive secretary for Dr. Allen. Dr. Jorge Balza, Buenos Aires, executive secretary for South of Panama, was re-elected.

Dr. Moacyr E. Alvaro, Sao Paulo, Brazil, president of the Association for the past four years and previously executive secretary for the countries to the South, was elected to a newly created office of executive director.

PAN AMERICAN SANITARY BUREAU

The Pan American Sanitary Bureau, Regional Office of the World Health Organization, has purchased 21 iron lungs and arranged for their immediate shipment through the kind offices of the U. S. Air Force, which has supplied a Globemaster cargo plane to fly them down to Buenos Aires for use in connection with the poliomyelitis epidemic which has flared up in that city and its vicinity.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Eleven grants totaling \$491,328 to enable hospitals, health agencies, and community groups to conduct research and demonstrations for the improvement of hospital services were made recently by the U. S. Public Health Service, Dr. Leonard A. Scheele, Surgeon General, has announced.

* * *

Food and Drug Administration

Sufferers from cancer, their families, physicians, and all concerned with the care of cancer patients are hereby advised and warned that the so-called Hoxsey treatment for internal cancer has been found by the United States Court of Appeals for the Fifth Circuit, on the basis of evidence presented by the Food and Drug Administration, to be a worthless treatment⁽¹⁾.

The Federal Food, Drug, and Cosmetic Act authorizes dissemination of information regarding drugs in situations involving imminent danger to health or gross deception of the consumer⁽²⁾.

The Hoxsey treatment for internal cancer involves such drugs. Its sale represents a gross deception to the consumer. It is imminently dangerous to rely upon it in neglect of competent and rational treatment.

The Hoxsey treatment costs the patient \$400 plus \$60 in additional fees, expenditures which will yield nothing of any value in the care of cancer. It begins with a superficial and inadequate examination of the patient at the Hoxsey Cancer Clinic, Dallas, Texas, or Portage, Pennsylvania. The patient at Dallas is then supplied with one of the following "cancer" medicines: black pills, red pills, a brownish-black liquid, or a light red liquid. The black pills and the brownish-black liquid contain: potassium iodide, licorice, red clover blossoms, burdock root, Stillingia root, berberis root, poke root, cascara sagrada, prickly ash bark, and buckhorn powder. The red pills contain potassium iodide, red clover, Stillingia root, poke root, buckhorn, and pepsin. At Portage the patient is given the same "cancer" medication although the colors of the pills are different. The light red liquid medicine is potassium iodide in elixir of lactated pepsin. There is evidence that potassium iodide accelerates the growth of some cancers.

The Food and Drug Administration has conducted a thorough and long-continuing investiga-

tion of Hoxsey's treatment. His claimed cures have been extensively studied and the Food and Drug Administration has not found a single verified cure of internal cancer effected by the Hoxsey treatment. In addition, the National Cancer Institute of the United States Public Health Service has reviewed case histories submitted by Hoxsey and advised him that the cases provided no scientific evidence that the Hoxsey treatment has any value in the treatment of internal cancer.

On October 26, 1953, Harry M. Hoxsey, the Clinic, and all persons in active concert with him were enjoined by the United States District Court at Dallas, Texas, from shipping their worthless cancer medicines in interstate commerce with labeling representing, suggesting, or implying that the products are effective in the treatment of any type of internal cancer. While the Government intends to prosecute violations of the injunction, this warning is necessary for the immediate protection of cancer victims who may be planning to take the Hoxsey treatment.

Those afflicted with cancer are warned not to be misled by the false promise that the Hoxsey cancer treatment will cure or alleviate their condition. Cancer can be cured only through surgery or radiation. Death from cancer is inevitable when cancer patients fail to obtain proper medical treatment because of the lure of a painless cure "without the use of surgery, x-ray, or radium" as claimed by Hoxsey.

1. The court decisions can be found in Volume 198, Federal Reporter, Second Series, page 273, and Volume 207, Federal Reporter, Second Series, page 567.
2. 21 U.S.C. 375 (b) This authority has been delegated to the Commissioner of Food and Drugs by the Secretary of Health, Education, and Welfare, 20 Federal Register 1998.

* * *

The Food and Drug Administration recently has given notice of a hearing to receive evidence on the question whether ointments or lotions containing hydrocortisone or hydrocortisone acetate may safely be labeled and sold for use without prescription. The hearing will begin at 10:00 o'clock on May 23, 1956, in Room 5051, Health, Education, and Welfare Building, 4th and Independence Avenue SW., Washington, D. C. Leonard D. Hardy of the Department will serve as presiding officer.

George P. Larrick, Commissioner of Food and Drugs, said this was the first such hearing to be held under regulations promulgated on November 13, 1954, which established procedure for the transferring of drugs from sale exclusively on prescription to over-the-counter sale.

Mr. Larrick said 10 different pharmaceutical firms had petitioned FDA to exempt the drugs from the prescription dispensing requirements. A proposed order to this effect was published in the Federal Register on January 20, 1956. Comments and exceptions were received from various interested persons. In view of these comments the

Commissioner concluded that granting or refusing the exemption requires additional study. The ointments and lotions are prescribed for relief of irritations and itching associated with poison ivy, insect bites, and minor skin disorders. Several dermatologists have raised the question of safety for lay use in terms of spreading of skin infection and systemic absorption.

According to the announcement in today's Federal Register, the hearing will be held for the purpose of developing facts bearing on the following questions:

1. Are ointments and lotions containing not more than 2.5 percent of hydrocortisone or hydrocortisone acetate safe for use without prescription, when applied to the skin not more than twice daily for not more than 5 days, in the relief of itching and inflammation associated with minor skin irritations?

2. Are ointments or lotions of hydrocortisone or hydrocortisone acetate safe for use without prescription under other conditions of composition and/or labeling?

3. Is a warning against use of such preparations in the presence of infection necessary for safety of use without prescription when the hydrocortisone or hydrocortisone acetate is combined with antibiotic drugs such as oxytetracycline hydrochloride or neomycin sulfate?

HEBREW MEDICAL JOURNAL

The HEBREW MEDICAL JOURNAL, under the editorship of Moses Einhorn, M.D. of New York, has marked its twenty-eighth year of existence by the issue of two volumes in 1955. Written in Hebrew, with English summaries, the journal has played an important part in the creation of a medical literature and terminology in the language of the Bible.

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BOOK REVIEWS

Understanding Surgery. By Robert E. Rothenberg, M.D., F.A.C.S., 620 pages. Price, 50 cents. New York: Pocket Books, Inc., 1955

This text, an original Giant Cardinal Edition published by Pocket Books, Inc., was written and edited by Dr. Robert E. Rothenberg, Fellow of the American College of Surgeons. Dr. Rothenberg is associate attending surgeon at the Jewish Hospital of Brooklyn and clinical assistant professor of environmental medicine and community health at the State University College of Medicine in New York.

In his own practice, Dr. Rothenberg has always stressed the importance of the patient's understanding of and emotional reaction to surgery. With the aid of seven other medical specialists, he has prepared a text that explains the nature of surgical operations and the reasons for them.

Understanding Surgery is divided into sections, each dealing with specific operations on various areas of the body. The extensive use of illustrations further clarifies the text. At the end of each description are related questions often asked by his patients, and Dr. Rothenberg's answers. An introductory chapter covers the safety of and need for surgery, surgical costs, the hospital and the operating room, preparation for and treatment after surgery, and anesthesia.

This book is a practical volume for anyone who may be having an operation himself or for his family and friends. It can also be a valuable aid to doctors, nurses, receptionists, and others in the medical profession who deal with the public.

The Month in Washington

A little-publicized study group of eight physicians and scientists has submitted a report to the Secretary of Health, Education, and Welfare that promises to stimulate considerable debate by all interested in medical research, including members of Congress.

The committee was appointed by the National Science Foundation a year ago at the request of former HEW Secretary Hobby for "a critical review" of the scope and distribution of all phases of medical research where United States funds are used. Heading the committee was Dr. C. N. H. Long of the Yale School of Medicine.

Three basic proposals of the committee are:

- (1) that research within the National Institutes of Health research be levelled off, and policy and personnel matters there

From the Washington Office of the American Medical Association, 1523 L Street, N. W., Washington 5, D. C., Phone STerling 3-8155.

be brought under the scrutiny of an advisory board of non-governmental medical scientists;

(2) that other research under the Public Health Service, including teaching grants to institutions and fellowships, be put under a new Office of Medical Research and Training reporting directly to the HEW Secretary and outside the control of the Public Health Service;

(3) that emphasis be placed on general research rather than the present trend of specific grants for specific disease studies, the so-called categorical approach.

On receipt of the report, Secretary Folsom promised it would be studied "intensively" both by HEW and PHS officials, but he set no time deadlines.

The Long Committee noted the tremendous growth in federal medical research during and since World War II and the increasing role played by PHS. While conceding that PHS has done its job effectively, the committee felt that the time has come to re-examine the concentration of activities under one agency.

On its first point the committee said the National Institute of Health is making a major contribution in medical research and that senior appointments there should actually become "the most sought after in the country." It suggested legislation that would permit employment of research scientists at the institute without regard to commissioning in the PHS corps or salary limitations imposed by civil service.

On its second basic proposals, the committee recommended that the new agency have authority over (a) unrestricted, long-term institutional grants, (b) grants for research, both categorical and non-categorical, (c) fellowships and traineeships in medical and related areas, and (d) grants for construction of research and teaching facilities.

Commenting on the categorical approach to research, the committee said that the public has been "led to believe, consciously or unconsciously, that the donation of sufficient sums of money is all that is needed to eradicate diseases which have plagued mankind for centuries."

In Congress, any move away from categorical grants in medical research is certain to produce fireworks. Some senators

and representatives believe that it is the responsibility of the Congress to designate where the money it appropriates is to be spent, and they are not inclined to make an exception for research funds.

* * *

Two bills on military medical legislation went through the House without change, after detailed hearings and study by a subcommittee. The expectation is that action on them will not be long delayed in the Senate.

One is designed to make military medical careers more attractive by allowing credit for time spent in medical school and internship, and setting up a series of three \$50 per month raises after three, six and ten years' service. These would be in addition to the present \$100 per month special pay for medical officers. Public Health Service medical officers would benefit, as well as those in Army, Navy and Air Force.

The other bill, well on its way to becoming a law, allows dependents of servicemen to receive private hospital and medical care, with the government paying the costs of the insurance or health plan coverage and the dependent the first \$25 of the hospital bill. The Secretary of Defense, however, could limit or deny such private care in areas where he determines that military medical facilities are adequate to handle the service families.

* * *

Some of the pharmaceutical houses have told Secretary Folsom that they plan to use more personnel and equipment to step up production of Salk vaccine, but his expectation still is that it will be "many months" before there will be enough vaccine for three shots for "all who need them."

In Memoriam

David Rice Bryson, born in Bryson City, North Carolina December 26, 1875, received his M.D. degree from the University of North Carolina in 1896. In 1900 he interned in Baltimore hospitals, practiced several years in Charlotte, North Carolina, then returned to Bryson City, where he practiced until 1953. For 50 years he served as railway surgeon of Southern Railways.

He died December 22, 1955, of Parkinson's disease.

NORTH CAROLINA

Medical Journal



Vol. 17 No. 5
May, 1956

IN THIS ISSUE:

PRESIDENT'S ADDRESS — JAMES P. ROUSSEAU, M.D.
PANEL DISCUSSION ON PEPTIC ULCER

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NORTH CAROLINA MEDICAL JOURNAL

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MAY, 1956

NUMBER 5

President's Address

JAMES P. ROUSSEAU, M.D.

WINSTON-SALEM, N. C.

Fellow members, ladies and gentlemen, distinguished guests, and good friends: It often happens that when I prepare to say something, I find that someone else has already said it far better than I can. Much of what I shall say, therefore, will be borrowed without credit to the original author. Those who may recognize their words are now given full credit. It has been said that "all work and no plagiarism makes a dull speech."

Not long ago I heard an excellent address by an after-dinner speaker. He had two medals on his coat lapel—a small one for speaking and a very large one for stopping. I hope to earn the large one. I'm sure you share this hope with me.

During the past year, with a sense of great pride and deep humility, I have followed my illustrious predecessors in the highest honor ever bestowed upon a physician by his friends and colleagues in our State Medical Society. It is the highest professional honor I have ever received.

It is the custom for the President of the United States to address the opening session of every Congress. This address is usually referred to as his "State of the Union" message. It is not only custom and tradition, but a requirement of the By-Laws of our Society that your President shall deliver to the members at the annual meeting an address which generally relates to the "state of medicine." This is the most opportune time for me to do so. My observations will be in proper sequence with respect to the inaugural remarks of your incoming president, Dr. Donald B. Koonce, which you will hear this evening. I, therefore, beg your indulgence for a few moments while I

fulfill this obligation as your retiring President.

A Word of Appreciation

The presidency of the Medical Society of the State of North Carolina is a high honor. It is also a demanding responsibility that no man can carry alone. The help of others is necessary at all times. I wish to express my heartfelt gratitude to the officers, the Executive Council, the chairman and members of all committees, and many individual physicians whom it has been necessary to call upon during the year. Their devotion to service and prompt response to every call to duty have made the progress of the past year possible.

My sincere appreciation of the invaluable assistance of our constitutional and executive secretaries and other members of the headquarters staff were recorded in my address to the House of Delegates yesterday. I wish again to express my personal appreciation to Dr. Millard D. Hill, Mr. James T. Barnes, Mr. William B. Hilliard, and Mrs. Annette Boutwell for their many valuable contributions to the welfare of the Society.

I also wish to express our thanks and sincere appreciation to President Croom and all the state and county officers of our splendid Woman's Auxiliary. Their leadership has been of the highest quality, and new leaders, with the right attitude, are being developed. Their cooperation and valuable service have contributed immensely to the fields of public relations, legislation, rural health, medical education, and the various community health agencies.

In all the deliberations and discussions of the Executive Council and the various committees regarding the many problems which have arisen, I have been especially im-

pressed with the single desire to go slow, to think, and to be guided by calm reason, tolerance, a sense of fair play, patience, honesty, and justice for all. I have not encountered a single situation in which extremists on either side of a question could have led to a stalemate or disaster for some of our programs. These men and women are responsible for the progress of our programs, and the advancement of the art and science of medicine. In many discussions of medicine with physicians and leaders in other walks of life in this and other states, I have received no selfish requests from physicians. We may well be proud of this fact. So long as physicians continue to maintain the high ideals which I have been privileged to hear expressed this year, I am sure we will win back the public's high respect and esteem for the medical heritage handed down by our forefathers.

During my 35 years of association with the Medical Society of the State of North Carolina, it has been a source of great satisfaction to me to observe the activities, programs and progress of the Society. Time will not permit me to discuss the changes which have taken place, not only in the Society and its philosophy, but in the relations of individual physicians to medicine, to their patients, and to society in general. We are living and working in an age of great industrial expansion in a rapidly growing and aging population. The medical profession today is faced with far-reaching events — events which challenge our leadership. I do hope that we will have the courage and wisdom to rise to the occasion.

The medico-labor, medico-social, political and industrial tides sweeping this country today compel us to face problems we once thought distant. As the pendulum swings, change is one of the most certain things on earth. It occurs in medicine and in all other walks of life every moment, hour, day, and year. A business executive once remarked that "the big bug-bear in change is obsolescence." Yet we must make plans for the future which by tomorrow will be obsolete in this age of unprecedented speed. We must, like Alice in Wonderland, run faster and faster in order to stand still.

Your officers and committees have met the ever-changing problems in medicine with foresight, wisdom, and good judgment.

Their selfless devotion to medicine and the long hours they have spent working on our problems has been my greatest personal satisfaction during the year. My former high respect of physicians has increased manifold.

Individualism and Tradition

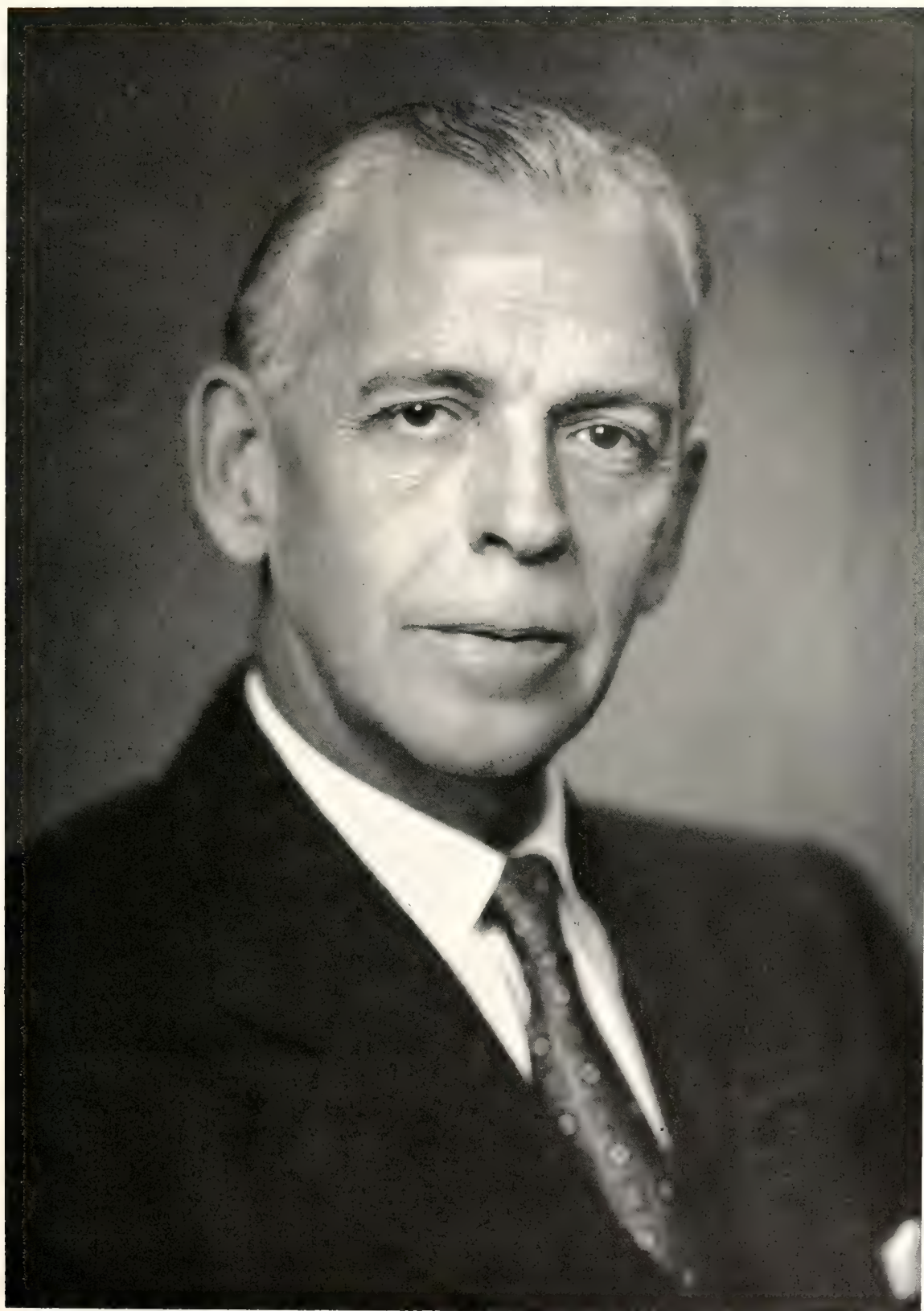
If one will recall the addresses of my predecessors in office, it will be noted that a certain basic theme is common to most of them. Why? The profession of medicine is as old as man. As a consequence, it has a character which is as complex as the personality of man. Component parts of this character are individualism and tradition. Medicine is a basic science and art. Because of this its growth cannot be measured in terms of years, decades, or even centuries. I expect that medicine will continue to suffer growing pains for some time to come. Like human adolescence, which is basically similar in each generation but greatly influenced by change in social, civic, political orders and inventive ingenuity, so is the adolescence of medicine.

A doctor must have individualism and self-reliance. He is indebted to many and is as dependent as he is indebted. A doctor must fully realize that he cannot remain isolated, regardless of his experiences and achievements, without losing touch with the realities of medicine. He is a member of an important profession, which affords unusual opportunity for the exercise of leadership in order that his profession will subordinate selfish group interest and exert a more potent and inspiring influence, not only in his profession but in all national, state and local agencies dedicated to human welfare.

The Challenge of the Future

What of the future? Because of the many revolutionary changes occurring in every walk of life, the future will bring many new issues and problems for the medical profession. This should not discourage us but urge us on with more determination to open up and conquer new frontiers as past generations have done. Medicine stands on the threshold of future achievements that will excel those of the past. Man's imagination, once stretched to new ideas like an elastic band, never quite returns to its original dimension.

We are the generation in action. We must not attempt to control the thoughts and



JAMES P. ROUSSEAU, M.D.

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actions of the generation in training. They should be left free to develop new ideas for the advancement of the art and science of medicine. Our obligation to them is to point out our mistakes in order that they will perpetuate as few as possible.

The modern physician needs the skills and talents of a host of others to enable him to accomplish his mission. It requires change in medical traditions, especially in areas in which traditions have been outmoded. This does not mean that fundamental concepts and principles must be modified or abandoned. It does mean that physicians must demonstrate true qualities of leadership by adapting themselves to changing times and conditions. They must guide and direct or be doomed to follow the policies of those far less competent to lead, if future advances are to match those of the past.

In all our plans for the future progress of medicine, we must keep open minds and hearts. One characteristic of tornado damage which puzzled the pious was the fact that barrooms and taverns rarely suffered. Only recently have churches come to realize the importance of open doors, as a safety valve, when meteorologic pressure disturbance occurs. An open mind should be like a swinging door—swinging in to receive, out to share. One of the tragedies of life is the danger of a closed mind which lives in the past with the doors firmly locked. The mature mind must be open to receive and share. An open heart is just as important. There must be a willingness to share the problems and needs of others. But the door must also swing outward, permitting us to share with others our inner joys and experience. The Bible tells us, "Freely ye have received—freely give." Life is a stewardship and is only successful as we learn to share with others our time, talents, knowledge, skills, money, and our God.

Centralization and Uniformity

Many of the ills of medicine are due to two quite different processes occurring in society as a whole. The first of these is the growth of a strongly centralized power in our trade unions, political parties, various organizations, government, and hospitals, which impose strict rules on their members and citizens. These result in an important and serious disease which may be named compulsory uniformity of human behavior.

This is a serious disease, partly because it cannot be for the ultimate good of mankind, and partly because it implies powerful forces, but dimly understood, which we have no prospect of controlling. If these forces achieve their objective of power and control over the lives of individual citizens—the moral and monetary incentive to live, work, create and investigate—life would hardly be worth while. We would have a slave-state—a dictatorship.

We need to re-establish first of all the moral rightness of our American principles and medical policies. We must in some way let the public know that we are on their side in the great fight for health. It is the duty of every citizen to understand the difference between the American way of life and communism and socialism. We must become active in government and dedicate part of our everyday life to bringing these duties of citizenship to the attention of our fellow workers, neighbors, friends, and especially of the youth in the medical profession. The future strength of American medicine must depend upon the moral and intellectual assets that are being inculcated in the hearts and minds of our medical students and young physicians today. It is not too much to ask that we do these things. If one thinks it is, he ought to read again the history of the founding of this nation and see and feel the hardships overcome by people who made our freedom possible. We were first citizens of some community. Our citizenship antedated our professional life.

We must be careful not to appear to others as reactionaries. In presenting these views, I should like to make it clear that I am not opposed to change; indeed, our profession is dedicated to effecting change. Change is inevitable, and to try to stop it would be futile. But it will be given to all of us to contribute to fashioning that change, and we shall be able to do it more wisely if we are aware of the ailments that may and do affect the body and soul of our important patient.

We are still fortunate to have a choice in American medicine; this is not true in many other countries. I can say with relief that our Medical Society is economically sound—with determination, that it is energetic, forward looking, ambitious, sometimes impetuous; with satisfaction, that it is united in thought, purpose, and action.

Activities of the State Society

Many of the programs of the Medical Society have already reached fruition. Others now under consideration in our committees will require our Society to assume a more positive and progressive attitude. The many activities in which our various committees have been engaged will be published in the August issue of the NORTH CAROLINA MEDICAL JOURNAL. I urge every member to read and study them in detail. By doing so, you will be better qualified to share your views with the Society and express views on all our programs.

What has been accomplished could not have been done without the support of all the members. I need not tell you of the many things our Society needs to do. We must continue to be vigilant and active in the field of state and national legislation that affects our requisite freedoms and the health and welfare of the public. Had we not spent much time in vigorous and effective opposition to the efforts of the politicians to enact compulsory health insurance in this session of Congress, we would most likely have socialized medicine today.

I suggest that the fields of public relations, civil defense, rural health, mental health, maternal welfare, neonatal deaths, rehabilitation and the problems of chronic illness in a rapidly aging population will demand more and more of our time. Home, farm, and highway accidents have become the most urgent problem of the American public. We should take the lead in educating the public in methods of prevention and treatment.

We must eventually give more study to the marked increase in malpractice suits. These suits should never be compromised unless obvious error has been committed.

There are several hundred physicians in North Carolina who do not belong to the Society. I urge every county society to exert its influence to enlist all new members in their county. They will not only strengthen the Society, but the Society has much to offer them.

In summing up my year of stewardship, I am not foolish enough to think that all our problems have been completely re-

solved in the past 12 months. At the end of my term of office, however, I can point with some pride to some accomplishment toward fruition of some of them.

The purchase of valuable property on the Raleigh-Durham Highway for the construction of our Headquarters Office will be an asset of which every member will be proud, when plans now underway are completed. It is a progressive, forward-looking step which will be of great value to our members for generations to come.

Another material benefit is an agreement with the St. Paul Mercury Indemnity Company of St. Paul, Minnesota to write professional liability insurance for all members on a voluntary basis, the premiums to be based on losses in North Carolina.

In the important field of self-regulation, the Executive Council has approved asking the 1957 Legislature to amend the Medical Practice Act to provide for the annual registration of physicians in North Carolina. It will be most helpful to the Board of Medical Examiners and to the Society in protecting the innocent and penalizing the few guilty physicians in our profession. A good doctor needs no defense. A guilty one deserves none.

There is not time to mention many other programs in which our hard-working committees have made progress. They are none the less important and require the full support and cooperation of every member.

Conclusion

Our profession has problems, but we also have the ability, the interest, and the desire to solve them. Some of them will require change in some of our traditional attitudes. We have reached our present high standard of medical care by overcoming obstacles on the main road to progress. This is so because we, as physicians, have been basically motivated by the Great Physician's conception of a healer. We must constantly strive to emulate Him "Who nearly two thousand years ago tried to teach mankind a lesson, never quite learned, yet never quite forgotten; that there may be a kingdom in which the least shall be heard and considered side by side with the greatest."

PANEL DISCUSSION ON THE COMPLICATIONS OF PEPTIC ULCER

Surgery for Peptic Ulcer of the Duodenum*

DERYL HART, M.D.

ROBERT L. A. KEELEY, M.D.

W. GLENN YOUNG, JR., M.D.

and

WILLIAM G. ANLYAN, M.D.

DURHAM

The expressions "early diagnosis" and "early treatment" have been used most widely in discussions related to cancer. Moore⁽¹⁾ and his colleagues, however, have called our attention to the early differentiation between the benign duodenal ulcer which can be treated medically and the progressive virulent ulcer diathesis which will ultimately have to come to surgery. The patient with the latter condition can be saved much time, suffering, and financial loss by early recognition of the necessity for surgical treatment.

It is the purpose of this paper to present data to support a plea for an earlier evaluation and classification of patients with duodenal ulcers and earlier referral of the virulent group for surgical treatment. In the past many individuals with duodenal ulcers have been maintained on medical regimens for long periods when earlier accurate evaluation would have indicated the more virulent type of ulcer diathesis, with its frequent and serious complications.

Unfortunately, a few internists are still refractory to accepting the excellent results of present day treatment by partial gastrectomy in the treatment of duodenal ulcers. The hazards of gastric surgery in the first quarter of this century still linger in their minds and delay their decision to request a surgical consultation.

This difference of opinion between some internists and some surgeons in regard to treatment is typified in the purported badgerings of Sippy (of the Sippy diet) and the famous surgeon, John B. Murphy. The

former stated that he spent most of his time treating the patients who had been operated on by Murphy. Murphy replied that he never operated on a patient until after Dr. Sippy had cured him at least three times. Today we can truthfully say that we do not operate, except in case of emergency, until the patient has had a reasonable trial of medical therapy. Suitable surgery on the other hand gives a high percentage of satisfactory results in those patients in whom medical therapy has failed.

It is true that in the earlier period the complications and mortality following surgery were high. Dr. Finney⁽²⁾, in 1929, presented before the American Surgical Association the results of surgical treatment of peptic ulcer at the Johns Hopkins and Union Memorial Hospitals covering the years 1900-1925. The mortality is given in table 1.

Table 1

Procedure	Mortality Per Cent
Posterior Gastroenterostomy	
Simple ulcer	8.2
Perforated ulcer	23.6
Marginal ulcer	20.0
Pyloroplasty	5.2

Even at that time 84.6 per cent of those surviving operation were improved.

The following year, at the meeting of the American Surgical Association, 14 outstanding surgeons from leading medical centers in this country presented their results of surgical treatment for peptic ulcer⁽³⁾. The best and the poorest results in these many reports are listed in table 2.

At this time the transition from simple gastroenterostomy to subtotal gastrectomy

*Presented before the Section on Surgery, Medical Society of the State of North Carolina, Pinehurst, May 4, 1955.

*From the Department of Surgery, Duke University School of Medicine, Durham, North Carolina.

Table 2
Results of Posterior Gastroenterostomy (1930)

	Low (Per Cent)	High (Per Cent)
Surgical mortality	1.8	15.1
Results in survivors		
(1) Great improvement	59.0	88.0
(2) Some improvement	6.0	18.0
(3) No improvement	11.0	22.0

was in progress, but the latter operation was not widely used because of the operative risk. Sympathectomy and vagus nerve resections were also discussed, but again such operations were rarely performed. By present standards the operative mortality was high. Deaths were due predominantly to peritonitis, pulmonary complications, and malfunctioning stomas. The latter were usually referred to as a vicious circle, but were recognized at that time as due to high intestinal obstruction. Dr. Balfour, in summarizing the symposium, stated that, leaving aside the mortality rates, there was a very definite conformity in the results of gastroenterostomy in chronic duodenal ulcer, with 85 to 90 per cent of the patients showing definite improvement.

During the past 25 years the results in the survivors have been further improved. The tremendous advances in surgery that have brought about this improvement have also led to a marked reduction in the mortality and morbidity rates following gastric surgery. Subtotal gastrectomy has largely replaced the simple gastroenterostomy as the procedure of choice in the surgical treatment of very active duodenal ulcers except in the hands of those surgeons who advocate vagotomy combined with a drainage operation. The subtotal resection accomplishes (1) either a removal or total by-pass of the duodenal ulcer, (2) removal of the gastric antrum responsible for the hormonal (gastrin) stimulation of acid secretion by the stomach, and (3) removal of a considerable part of the acid-secreting area of the stomach. We now have a wide choice of surgical procedures for use in duodenal ulcer, and these are reported in the vast literature of this subject.

At Duke University Hospital we have preferred a more conservative resection of the stomach. The average resection for duodenal ulcer at our institution entails the removal of approximately 60 to 65 per cent of the stomach rather than the more

extensive gastrectomy generally advocated. We, therefore, favor the term "partial" gastrectomy rather than subtotal gastrectomy. The reason for our conservatism is that to us it seems preferable to run the very small risk of a marginal ulcer in a few, rather than to create a large number of nutritional cripples.

Many factors have been responsible for the lower mortality and morbidity of gastrectomy. The greater number of well trained surgeons performing better basic surgery has lowered the incidence of malfunctioning stomas. The antibiotics have virtually eliminated the dreaded postoperative pneumonias and peritonitis. A better knowledge of fluid and electrolyte problems has made it possible to recognize and replace deficiencies caused by maintaining patients on prolonged gastric suction.

Experience at Duke

Since 1939 331 partial gastrectomies for peptic ulcers of the duodenum have been performed at Duke University Hospital. The experience from 1939 to 1946 has been reported⁽⁴⁾ and will be used for comparison with the results of partial gastrectomy in the later period of 1947 through 1953.

Records were available on 248 patients undergoing partial gastrectomy for duodenal ulcer in the latter period. The indications for gastrectomy are given in table 3.

Table 3
Indications for Operation

	No. Cases
Intractability	124
Obstruction	84
Uncontrolled bleeding	35
Perforation	5
Total	248

Recently a comprehensive questionnaire has been sent out to all survivors of the operation. A complete long-term analysis will be reported in a subsequent paper. Of the 248 patients, 11 died during the postoperative period; the operative mortality was therefore 4.44 per cent. Six of the deaths were in patients having massive uncontrolled hemorrhage. Excluding these, there were 5 deaths in 213 cases, or a mortality of 2.3 per cent. Eight patients have died subsequently of unrelated causes.

In response to the question, "What is your frank opinion of your operation?",

Table 4
Mortality and Complications in 256 Cases of
Duodenal Ulcer (1947-1953)

Indication	Cases	Deaths	Percentage
Intractability	124	1.6	
Obstruction	84	3.6	
Hemorrhage	35	17.2	
Perforation	5	0	
Totals	248	4.4	
Total (excluding hemorrhage cases)		2.3	

134 to 147 patients were very highly pleased with the operative result, 13 to 147 patients were dissatisfied, 128 to 148 patients were on a regular diet, and only 20 to 148 remained on special diets. Approximately 25 per cent of the patients experienced mild symptoms following meals. Most of them experienced this distress for just a few months postoperatively, others on over-eating or following the ingestion of certain special foods. It is of great interest that the commonest food reproducing this syndrome was found to be "sweets or candies."

With regard to rehabilitation, 98 to 149 patients had returned to full-time work, and quite often within a period of a few weeks. Forty to 149 were doing part-time work. Only 11 to 149 were unemployed, and of these 7 are males and 5 are more than 60 years old. The most striking reply was in response to the query as to whether they would have been benefited by earlier operation. The answer was overwhelmingly in favor of earlier operation: 135 to 144 patients were of the opinion that if their operations had been performed sooner, they would have lost less time from their disability. Some patients enthusiastically expounded this point and wished that the surgical intervention had been carried out up to 20 years earlier.

It is apparent from the foregoing facts and figures that there has been a marked reduction in the mortality of gastric resection for duodenal ulcer in the past 15 years. Excluding cases of massive hemorrhage, the mortality at Duke Hospital from gastrectomy for duodenal ulcer has been 2.3 per cent. This figure includes all patients operated on by both the senior and the resident staffs.

Complications

Of the more serious complications peculiar to partial gastrectomy for duodenal ulcer, duodenal fistula remains the most

Table 5
Comparison of Mortality Rates

Indication	1939-1946 (Per Cent)	1947-1953 (Per Cent)
Intractability	9.6	1.6
Obstruction	5.3	3.6
Hemorrhage	20.0	17.2
Perforation	0.0	0.0
Total	9.63	4.4
Total (excluding cases with hemorrhage)	7.3	2.3

Table 6
Complications Following Subtotal Gastrectomy
for Duodenal Ulcer—A Comparison

	1939-1946 (83 patients)	1947-1953 (248 patients)
Malfunctioning stomas	14 (4 oprs.)	7 (1 opr.)
Wound disruptions	2	11
Postoperative hemorrhage	2	3
Common duct injury	2	2
Subdiaphragmatic abscess	0	4
Duodenal fistulas	2	14
	(both fatal)	(4 fatal)

Table 7
Results in Survivors—A Comparison

	No. Discharged	No. Followed	Well (Per Cent)	Recurrent (Per Cent)
1939-1946	75	70*	88.06	8.9
1947-1953	237	163†	91.9	8.1

*3 died later of unrelated causes

†8 died later of unrelated causes

hazardous. Following the 248 partial gastrectomies for duodenal ulcer in the 1947-1953 period, there were 14 duodenal or pancreatic fistulas; of these patients, 4 died and 10 recovered. This complication is of particular interest in this discussion, since we feel that it is often due to the marked deformity and distortion of the duodenum resulting from the prolonged use of medical regimens. Earlier selection of these patients for partial resection would probably have avoided many of these fistulas. Similarly, injuries to the common bile duct due to far advanced disease of the duodenum can be highly fatal. When in doubt as to the exact location of the common bile duct, we make it our policy to explore it and to insert a probe through it into the duodenum. This also affords a much better duodenal stump closure and less chance of a blowout.

It is evident to every surgeon that the longer a patient continues with an active ulcer which is refractory to medical treat-

ment, the more the scarring and shortening of the duodenum, the deeper the excavation into the pancreas, and the greater the risk of perforation, hemorrhage, and obstruction. These are the conditions that are conducive to the above complications.

We are also particularly fortunate today in being able to select other types of operation for a duodenal ulcer that appears to be highly dangerous to resect—namely, a Finsterer exclusion procedure as modified by Bancroft, leaving the ulcer in, or perhaps a vagotomy with gastroenterostomy.

In this antibiotic age postoperative pulmonary and intraperitoneal infections are no longer a significant threat. Postoperative thrombophlebitis and pulmonary embolism, however, remain a major nonspecific threat in all types of surgery, especially with the liberal use of leg veins for the injection of fluid and blood replacement. We have been fortunate in not having a single fatality due to pulmonary embolism in this group of 248 patients; all cases of thrombophlebitis have been treated promptly with anticoagulant therapy.

Hence it is evident that the major remaining complications of subtotal gastrectomy for duodenal ulcer are fistulas and common duct injuries. Both could probably be averted by earlier surgical intervention.

Late results

The preliminary report of late results also appears most favorable (table 8).

Table 8
Late Results in Survivors

	Per Cent
Leading a normal life	91
Eating a regular diet	84.4
Working full-or part-time	92.6
Favored earlier operation	93.7

Summary and Conclusion

These statistics speak for themselves. There is no justification for an attitude of "surgery as the last possible resort" in patients who do not respond adequately to medical therapy.

Partial gastrectomy is a relatively safe and effective operation for duodenal ulcer which is refractory to medical therapy.

A careful evaluation of patients with duodenal ulcers should be carried out, some differentiation being made between the patient with a benign process and the patient

with the progressive virulent type of ulcer. It is a grave error to subject patients in the latter group to repeated courses of one or more medical regimens. It is also fallacious to regard the response to therapy in the hospital as evidence that the patient is not in need of surgical intervention. It is best to apply the decisive test with the patient in his normal socio-economic environment, especially when the latter is also incompatible with medical therapy. It is evident that in planning medical or surgical treatment every patient must be considered as an individual problem.

Of interest are excerpts from two letters from our patients. The first was sent by a prominent banker in North Carolina and the second was sent to the referring internist by a 51 year old electrical worker from Florida.

(1) "My vocabulary is insufficient to express my gratitude and favorable opinion of the operation you performed for me two years ago. So far as I can ascertain from my feelings, color of skin and otherwise, I am well in all respects. I consider myself above the average for men of my age in usefulness, feelings and activities and strength in general."

(2) "I feel so appreciative for the results I received that I have given thought to the possibilities of preventative operations for those, like myself, who once having developed an ulcer and never having learned to live with it nor accept it and with a family history of stomach trouble, could go through this operation and be done with it. I know it's a rough show, but to me the end results pay off. I feel that I would be financially better off today had I done so and would not have had all those years of suffering. It might be necessary to educate the public to be acceptable to the idea as it would eliminate a lot of years of suffering for those who, like myself, would end up by having the operation done anyway."

It should be emphasized, therefore, that in the duodenal ulcer problem, *earlier* differentiation between the benign and the progressive virulent ulcer should be made and *earlier* surgical intervention should be carried out in the progressive virulent group or in patients whose socio-economic environment is incompatible with the prolonged use of a medical regimen.

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Perforated Peptic Ulcer

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AHOSKIE

The progress of a peptic ulcer must depend on the balance between the etiologic factors and the natural tendency for healing. It has been estimated that at least 50 per cent of peptic ulcers form and heal without ever being seen by a doctor. Numerous studies have been made of conditions immediately preceding perforation in an effort to reveal evidence of the aggravating factors. Such studies have been non-revealing, showing no relationship to meals or activity of any kind. The most consistent finding is a relationship to fatigue. A few statistics suggest some connection with emotional upset. One interesting feature is that perforation of the ulcer occurs three times as often in men as in women.

Most ulcers which perforate are located on the anterior wall of the duodenum, with most of the remainder occurring in the stomach. In Europe perforation of stomach ulcers occurs more commonly. Perforation either climaxes a variable period of exacerbation of previous symptoms or occurs without warning. The process of ulceration in these cases apparently is painless. At operation these openings are small and have a minimum of induration.

Diagnosis

Diagnosis is usually not difficult. Severe pain is the most outstanding feature. It is usually located in the epigastrium, radiating diffusely, and is usually constant, though in a few cases it may be colicky. It occasionally occurs in the right upper quadrant or even in the right lower quadrant. Radiation to the shoulders occurs in about

half of the cases. Tenderness and muscle spasm in most instances involves the entire abdomen. In a significant number of cases, however, these symptoms are manifested chiefly in the epigastrium and down the right side of the abdomen. Almost invariably careful palpation will reveal the point of greatest tenderness to be in the epigastrium. Rebound tenderness is almost invariable. All these findings are influenced by the amount of peritoneal contamination, and since this occurs first down the right gutter, the findings are earliest and most marked here. Peristaltic sounds are either diminished or absent.

Roentgen evidence of free air is helpful in doubtful cases, and is positive in about two-thirds. When films are made, care should be taken to keep the patient upright or in decubitus for several minutes so that the air can localize. Occasionally massive amounts of air are found.

The temperature, blood pressure and white blood count are quite variable, and are of very little help in the diagnosis.

Treatment

The generally accepted treatment of perforated ulcer has been simple closure of the perforation. Such treatment has succeeded in reducing the mortality from 40 per cent in 1915 to 1 to 3 per cent at the present time. Such results would seem to be satisfactory, and do not suggest any need for change. Wangensteen⁽¹⁾, however, has estimated that in the United States 10,000 people die each year of peptic ulcer and its complications. Alternative methods consisting

of conservative management with continuous gastric suction and the use of immediate gastric resection have been used increasingly in Europe. In the past 10 years these alternatives have been advocated in this country.

Conservative management

Ogilvie⁽²⁾ states that the first recorded treatment of perforation with continuous suction was used in London in 1892. Its modern use in any widespread fashion has been in France and England. It has a considerable number of advocates as a routine treatment, at least initially, and several series of cases numbering close to 100 have been published, with mortality rates approaching that of simple closure. From all reports conservative management can be expected to be successful with the acute perforations which have already sealed off and with small perforations which are still leaking. Most of the failures occur with large indurated ulcers and with gastric ulcers. The method is extremely difficult to manage, as it requires constant supervision. The difficulty of selecting favorable cases for its use would seem to be insurmountable. The method has been used extensively in very few places in this country, and it seems doubtful that its popularity will increase to any degree despite glowing reports from its enthusiasts in Europe.

The chief advantage of conservative management is that it can be used with a clear conscience in cases of doubtful diagnosis, in poor risk cases, and in situations where the time interval since perforation is approaching 24 hours. With or without surgery, keeping the stomach empty is of value. As soon as the diagnosis is made or suspected, the stomach should be emptied and kept so until definitive treatment can be given. An hour or so can elapse after the patient reaches the hospital; and, since every hour markedly increases the mortality, the prompt emptying of the stomach when the patient is first seen will be the equivalent of shortening the time interval following perforation.

Immediate gastric resection

The first resection for perforation was done in London in 1902⁽³⁾. The first significant series of such cases was made by Von Haberer in 1919. In the past 30 years immediate resection has become more and

more common in Europe, and some surgeons there have collected as many as 1,000 cases. Many clinics use the method almost routinely.

The rationale of immediate gastrectomy is that: (1) from 60 to 70 per cent of the patients treated by simple closure continue to have ulcer distress; (2) from 20 to 30 per cent finally come to surgery for treatment of chronic ulcer; (3) the mortality approaches that of elective gastrectomy, and the operation may be even easier in the presence of perforation than later on.

While the operation is held in favor in many European clinics, it has gained popularity more slowly in this country. A parallel may be seen in the history of elective resection for chronic ulcer, which was more quickly accepted in Europe. In fact, elective gastrectomy for chronic ulcer was not uniformly accepted here 20 years ago, when it was already gaining in favor as treatment for perforation in Europe. A few clinics in the United States currently use it almost routinely for perforation. The number using it in selected cases, however, is steadily increasing. DeBakey⁽⁴⁾, who 10 years ago opposed the idea, now has a series of about 50 cases of resection for perforation.

In summary, gastrectomy has proved to be a safe procedure in patients in good general condition. While few could endorse it as anything like a routine procedure, all the evidence points to the view that some cases should be treated by immediate gastrectomy.

Jones and Doll⁽⁵⁾, in an exceptionally long series (more than 700) with a rather good follow-up, state that: 11 per cent of their patients undergoing simple closure of gastric perforation ultimately died of cancer of the stomach; 18 per cent of patients with a history of less than one year at the time of perforation had subsequent operations; 41 per cent of patients with a history of more than one year underwent subsequent surgery, and 50 per cent of the patients in whom proven ulcers existed prior to perforation were subsequently operated on for ulcer. Five per cent of the total group who survived the perforation were dead of ulcer in six years.

Most other series of simple closure followed for any length of time reveal that about one-third of the patients have sub-

sequent surgery and another one-third have further difficulty from ulcer.

Emmett⁽⁶⁾, who utilizes gastrectomy almost routinely for perforation (90 per cent of the cases) in a six year period, did 127 elective gastrectomies with a mortality of 2.4 per cent; during the same period he did 46 gastrectomies for perforation without a death.

Further evidence favoring gastrectomy in perforation of the stomach, other than the danger of cancer, is that the mortality from closure of gastric perforations is much higher than similar closure in the duodenum.

In selecting cases for gastrectomy at the time of perforation, care must be taken to spare cases that may avoid it in the future. An increasing number of surgeons accept as indications for the procedure the perforations with pyloric obstruction and very large calloused ulcers; those in which perforation and hemorrhage are associated; and cases with a long history of intractability or previous perforation.

Summary

Conservative management has not proved superior to simple closure. It does have a place in the treatment of perforation in cases where a long interval has elapsed and the process has localized and clinical improvement has taken place when the patient is seen. It is useful when the diagnosis is doubtful, when the time interval approaches 24 hours, and when concomitant disability

makes the surgical risk prohibitive.

Immediate resection has proved to be a safe procedure, and in the light of all statistical evidence should displace simple closure in carefully selected cases.

Simple closure of the perforation remains the accepted procedure in the majority of cases. With the results it has yielded, definite indications should exist before any change from it is made. Simple closure can be followed by short interval resection, thus meeting one objection—that it is not definitive treatment. It is certain, too, that simple closure done routinely to the exclusion of other methods will not yield either the lowest immediate mortality or the best ultimate results.

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Peptic Ulcer Obstruction

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CHAPEL HILL

Obstruction is the most common complication of peptic ulceration. In its milder forms it presents no special features in symptomatology or treatment. On the other hand, when it is severe it causes effects which are disturbing and potentially dangerous. It may cause the first symptoms of ulcer, or it may more likely be one part of a chronic syndrome. Frequently it is the

main feature of intractability.

Incidence

Stewart⁽¹⁾ says that pyloric stenosis co-exists in 25 per cent of the cases treated surgically. Wilhelm⁽²⁾, of Seattle, found it in 29 per cent of his cases. Harkins⁽³⁾ found that 31.5 per cent of his patients with duodenal ulcer treated surgically had preoperative indications of pyloric obstruction. At present, however, I believe intractability and possibly bleeding are more frequent indications for surgery.

Symptoms

The symptoms are fairly clear cut, and

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References for this paper and the one following were not available at the time of publication. Those who wish may communicate with the author at North Carolina Memorial Hospital, Chapel Hill.

usually are the precipitating cause of hospital admission. The patient will endure pain and chronic bleeding, but massive pyloric obstruction they will not tolerate physically or esthetically—although the amount of obstruction that can sometimes exist without signs or symptoms is surprising. As a rule, the patient notices a sense of constant fullness that is more marked if he eats bulky food or large amounts; that he can tolerate only small meals, and any extreme causes tightness which is relieved only by vomiting. The character of the pain may change, becoming more constant, or another pain may be superimposed. The secondary pain does not seem to be related to food, comes on sooner, seems to be unrelieved by alkalies, and may diminish as the stomach dilates. As the degree of obstruction increases, nausea and vomiting soon develop and may increase until an alarming state exists.

Pathology

Stenosis is not, as a rule, due to cicatricial contraction alone, but co-exists with varying degrees of spasm and edema, the degree of each being determined only by observation during medical therapy. Spasm can be a prominent feature. It results from an ulcer high in the lesser curvature, away from the pyloric region. Swelling from congestion and inflammation is always present in some degree and will subside with gastric rest and therapy rather rapidly. Edema is probably the precipitating cause of complete obstruction in most cases. Locally, the increase of gastric activity leads to hypertrophy of both the muscle and mucous membrane, especially in the region of the antrum. The stomach dilates first in the region of the antrum, pushing the pylorus over to the right. Secretion gradually increases, both in acidity and in volume.

Systemically, there may be marked changes. There is a rather sudden loss of weight, owing to simple starvation and dehydration.

Treatment

Cicatricial stenosis is a positive indication for operative intervention. A considerable number of these patients, however, are nutritionally depleted, some quite gravely. Moreover, the surgeon is faced with a dilated, atonic, edematous stomach, a situa-

tion which makes immediate surgery extremely hazardous. Meticulous preoperative preparation is needed to compress the stomach, adjust the biochemical imbalance, and convert anemia and protein deficiency.

Systemic

Nutritional depletion has been reached because of starvation, plus the insult of vomiting. If the vomiting has been a prominent feature, the loss of water, chlorides and potassium may result in a grave situation. The patient is in a state of dehydration and alkalosis. Therapy is then directed toward allowing sufficient time for these changes to right themselves as much as possible. In most cases, if the obstruction is due mainly to edema, it will relent after a few hours or days of rest, with decompression by aid of a nasal tube and suction. In the meantime, the patient is being maintained on parenteral fluids.

We know that saline used to correct the loss of chloride and water may be sufficient; but, if there is a deficiency of potassium, it will only aggravate the condition and increase the clinical effects of low potassium. Potassium is lost not only because of starvation and excretion in the urine, but because it is contained in the vomitus—50 mg. per 100 cc. Deficiency of potassium exerts its main effect on the central nervous system and cardiac conduction, leading to drowsiness, disorientation, confusion, weakness, hypertonia, and even gastric distention and paralytic ileus. Potassium deficiency also contributes to the alkalosis, and the patient may not respond to therapy until potassium is given. Replacement must not be hurried, however, and the amount needed is difficult to estimate. Electrocardiograms and blood levels should be followed closely. Never give more than 20 milli-equivalents per hour, as cardiac arrest may occur rather easily. It is best to use Ringer's solution or some other electrolyte solution, so that water, chlorides and sufficient potassium can be given at the same time. These patients always have a low blood volume, which may not be apparent and can be corrected only by blood transfusion. As a rule, by following the fluid balance, urine output, and clinical features, with the added help of serum carbon dioxide combining power, chlorides, potassium and sodium studies, one can adequately prepare a patient for surgery in three or four days.

Local

In the meantime, the stomach must be initially emptied and lavaged with a large oral tube to insure good results. The lavaging should be done with Ringer's solution—never soda bicarbonate or plain water.

Nasal suction may then be instituted, using continuous suction, if tolerated. Continuous suction may be replaced by intermittent aspirations if desired later on. If the obstruction is not complete or if it subsides promptly, as it often does, then frequent small feedings or continuous drip feedings may contribute to the patient's nutrition and comfort. Kramer⁽⁴⁾ suggests cautious use of belladonna alkaloids, as he finds that they may produce or increase gastric retention by decreasing gastric tone and peristalsis, overbalancing any success they may have in reducing pyloric spasm.

After three or four days the stomach thus treated is sufficiently prepared to tolerate surgical intervention. Prolonged efforts to achieve a better nutritional status under these conditions is seldom successful if complete obstruction still exists, and surgery should be instituted without further delay. In a few cases, however, when the

situation is desperate and adequate corrective surgery is treacherous, jejunostomy is preferable. The patients may then be maintained for three or four weeks until they can tolerate major surgery. Another catheter may be inserted into the stomach for decompression, after the method suggested by Allen, thus relieving the patient of the discomfort caused by a nasal tube. This procedure may also be used in a poor-risk patient postoperatively.

Operative Treatment

The operative treatment consists of subtotal gastrectomy. There are few indications for gastroenterostomy today. We know that marginal ulceration can occur, as it has been shown that after obstruction is relieved gastric acidity again increases to a high level. Whether the Billroth I or Billroth II type of anastomosis should be performed, with or without vagotomy, is speculative. I would like to recommend the Billroth I procedure with a vagotomy. In our hands it has been most effective recently. It is easier to perform than a Billroth II, the postoperative course is satisfactory, and I believe the postgastrectomy syndrome will be less troublesome.

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Malignant Change in Peptic Ulcer *

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CHAPEL HILL

In discussing malignant change in peptic ulcer, we can disregard duodenal ulcer, but there can be little doubt that a small percentage of chronic gastric ulcers develop into carcinoma. A question of greater clinical interest, however, is how to distinguish malignant from benign ulceration? The most pertinent question is whether we should not subject more gastric ulcers to surgery.

Do benign peptic ulcers become malignant? They probably do, but the number of cases that will withstand severe pathologic criteria are few. The greatest argument, however, is in favor of carcinomas developing in ulcers. Jordan⁽¹⁾ followed 111 patients with apparent benign ulcer for five

or more years; carcinoma developed in 2. Mallory⁽²⁾ has seen none develop. Ackerman⁽³⁾ has seen 4 cases. In Stewart's 510 cases of chronic ulcer⁽⁴⁾, carcinoma developed in 51 (10 per cent). At Barnes Hospital, of 61 chronic cases of ulcers, carcinoma developed in 4. Regan⁽⁵⁾, in a series of 150 ulcers, found 10 that were proved to be carcinomatous. The incidence of carcinoma in these ulcerations, then, ranges from 5 to 10 per cent. As long as there is reasonable evidence that malignant changes do occur, we should certainly assume that carcinoma can develop in a chronic ulcer. It is difficult to believe that a person could have a carcinoma for as long as some of the histories indicate.

Diagnosis

What about the perplexing task of diagnosis? How do we distinguish between ma-

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lignant and benign ulceration. The ulceration of a fungating, projecting carcinoma which almost never penetrates the muscle coat is not difficult to diagnose. But the penetrating small carcinoma with peptic ulceration gives considerable trouble. The following facts should be considered:

Incidence: There is one carcinoma to every 10 gastric ulcers and every 100 duodenal ulcers.

Age and sex are of no significance in diagnosis.

The *size* of the ulcer is of little help; however, any ulcer measuring more than 4 cm. should be regarded with suspicion. Comfort⁽⁶⁾ says that 20 per cent of ulcers measuring more than 4 cm. are malignant.

The *position* of the ulcer is of some significance. Jordan has stated that of ulcers in the cardia, 50 per cent are malignant; in the greater curvature, 60 per cent; in the body, 17 per cent; in the prepyloric region, 17 per cent. Benedict⁽⁷⁾ held that the chances of malignancy are 50/50 if the ulcer is in the prepyloric or cardiac region; 98 per cent, if the greater curvature is involved. He feels that you are never safe in guessing at the nature of a lesion on the lesser curvature unless it is at the fundus. Sosman⁽⁸⁾ says that "The higher up you go in the lesser curvature, the greater the proportion of malignancy."

The *duration of symptoms* is of little diagnostic help.

1. Symptoms of less than a year's duration in typical cases are easy to diagnose if there is marked anorexia, loss in weight, and little ulcer pain. Acute cases of peptic ulcer, with loss of weight and anorexia, do occur in old people, however.

2. A long history of ulceration is much more difficult to diagnose. Comfort believes that of ulcers of less than one year's duration, 30 per cent are malignant; of five to nine years' duration, from 5 to 15 per cent; and of more than 10 years' duration, 8 per cent.

Association with duodenal ulcer: Association of gastric with duodenal ulcer is quite striking, and does not rule out carcinoma. Jordan⁽¹⁾ reported that 29 per cent of patients with gastric carcinoma had associated duodenal deformity. Comfort found that 20 per cent of the patients with benign ulcer also had active duodenal ulcer.

The *symptoms* themselves are of no great

help. Recent changes in the symptoms, however, may be suggestive. Persistence of symptoms under good medical treatment is most significant. The persistence of indigestion cannot be ignored. Recurrence of symptoms may also be an indication of malignancy.

The factor of *hemorrhage* is of little diagnostic help. Massive hemorrhage occurs in 6 per cent of the cases of carcinomas and in 30 per cent of the cases of benign ulcer.

Acidity: Given one factor alone, acidity probably should influence us most. If there is anacidity, the odds are overwhelmingly in favor of a diagnosis of carcinoma. La-Due⁽⁹⁾, with studies of the histamine test, found that in normal individuals, the incidence of anacidity was 23 per cent, in ulcer patients, 7.4 per cent; in carcinoma patients, 51 per cent. Accordingly, any patient with achlorhydria associated with an ulcerated lesion should probably be treated with surgery. The odds are seven to one that he has carcinoma.

Roentgen studies are of tremendous help. A single gastrointestinal series is of little significance in the differential diagnosis, but several studies can be tremendously helpful. Any ulcer that persists or recurs is probably carcinomatous. Only if the crater of the lesion, the flexibility of the wall, and the clinical symptoms completely disappear can one be sure that the ulcer is benign. Diminution in size is of no help. The lesion must completely disappear. Carcinomas can also get smaller.

Gastroscopic examination is fairly accurate, especially if biopsies may be done. The ulcer, on appearance, has a clean white base and sharp edges. The carcinoma has a dirty, bloody base with an irregular margin. Fifty per cent of the cases can be diagnosed correctly by this method.

Exfoliative cytology: Stout thinks that exfoliative cytology is of no particular help.

Treatment

What, then, must be our treatment of gastric ulceration? We know statistically that one-fifth of the cases are probably malignant; that 16 per cent of those thought to be benign are malignant; that five-year cure rates ranging from 40 to 50 per cent can be obtained when gastrectomy is performed for benign ulcers which turn out to be malignant; that about 20 to 25 per cent of the patients will have hemorrhage,

perforation, or obstruction; that 50 per cent of the cases will recur within five years. LaDue⁽⁹⁾, at Presbyterian Hospital, found that medical management was unsuccessful in 52 per cent of ulcer cases. Medical care can be long, confining, and expensive. We know that surgery is effective treatment for gastric ulcer. Ninety-two per cent of such operations have been successful at Presbyterian Hospital. Operations had to be repeated in 6 per cent of the cases. The mortality is 1 to 5 per cent, and the morbidity, as a rule, is short and non-confining, and perhaps more economical.

Since results in surgery are good, which cases should be selected for this form of treatment? All? Probably not. Which cases, then, should be treated medically? Any of those that are shown by x-ray to be benign. Medical therapy should be continued only if there is (1) subsidence of all symptoms, (2) complete disappearance of the crater, and (3) complete return of gastric flexibility.

How long could we continue medical therapy? If the lesion heals, it should be followed very closely, as closely as a subtotal gastrectomy; and the patient should not be told that it is cured, because 5 to 10 per cent of the cases will become malignant.

Which patients, then, should be operated on? Any patient should have surgical treatment who does not obtain quick and lasting relief on medical treatment or who, for economic reasons, cannot follow a medical regimen throughout. Recurrent ulcer is a dangerous lesion and should be removed. Any patient with achlorhydria having an ulcerating lesion should undergo surgery. (The odds are seven to one that it is cancer!) Any ulcer that is larger than a 25 cent piece should be resected. Lesions of the greater curvature and probably of the cardia should be resected. Persistent blood in the stools is another indication for resection. In any case where the diagnosis is in doubt, surgery is probably indicated.

Accuracy of Diagnosis

How accurate are we, grossly, during operation? Fifteen to 20 per cent of our diagnoses of malignancy are erroneous. The accuracy is greatly enhanced by examination of frozen section. If there is any question of malignancy, probably one should assume that the diagnosis is cancer. The choice of procedure is subtotal resection. Vagotomy, in all probability, is not needed unless there is high acidity.

* * *

Massive Hemorrhage in Peptic Ulcer*

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The management of massive hemorrhage in peptic ulcer remains a challenging problem. The indications for surgery in this condition are still not well standardized, and the medical literature abounds in a profusion of contradictory advice. Therapy ranges from medical management of all cases to operation on all patients soon after admission to the hospital. The concepts leading to such wide variance of opinion concerning this complication are of interest.

Since the prognosis in severe bleeding ulcer is based on our accumulated experience, we have examined the records of all patients treated for this disorder at Duke Hospital during the years 1930-1953.

Incidence

It has been estimated that approximately 10 per cent of the population of the United States at some time suffer from peptic ulcer. Reports in the literature indicate that from 10 to 20 per cent of all patients with the condition experience the complication of gross hemorrhage. At Duke Hospital from

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Table 1

**Incidence of Hemorrhage in Peptic Ulcer Patients
Duke Hospital 1930-1953**

	Number	Per Cent
Cases of peptic ulcer	3,563	100
With hemorrhage	413	11.5
With massive hemorrhage	168	4.7

1930 to 1953 3,563 patients were admitted for treatment of peptic ulcer, and of this number, 413 (11.5 per cent) presented the complication of hemorrhage. Further, of those who bled, approximately half suffered a hemorrhage of major proportion. Of 413 patients with bleeding ulcer admitted to Duke Hospital from 1930 to 1953, 157 suffered a massive hemorrhage. Lewison⁽¹⁾ reported that of 217 patients admitted to Johns Hopkins Hospital with hemorrhage from peptic ulcer from 1928 to 1946, 102, (49 per cent) suffered a massive hemorrhage. Massive hemorrhage, as defined in this report, includes those patients whose hemoglobin on admission to the hospital or soon thereafter was 50 per cent of normal or less.

Table 2 shows the age, sex, and race distribution of patients with severe hemorrhage seen at Duke Hospital. Attention is called to the fact that the ratio of men to women is approximately 5 to 1. There were 151 duodenal ulcers, 5 gastric ulcers, and 1 marginal ulcer in the series.

Diagnosis

Patients with severe upper gastrointestinal bleeding present themselves with gross hematemesis, melena, or both. The most helpful factor in the differential diagnosis is a carefully elicited history. Hoerr⁽²⁾, in classifying the causes of upper gastrointestinal tract hemorrhage, stated that 75 per cent of these cases are caused by peptic ulcer, 9 per cent by gastritis, 7 per cent by esophageal varices, and 3 per cent by gastric neoplasm. Six per cent are of undetermined cause.

Following emergency treatment and a careful history and physical examination, special examination should include laboratory tests of liver function and blood coagulability potential, blood hemoglobin and hematocrit, and blood nonprotein nitrogen. X-ray examination with barium at the earliest feasible time should be done to rule in or out esophageal varices, peptic ulcer, or gastric neoplasm. Prior to operation, if this

Table 2

Age, Sex and Race Distribution

	Total	Surgical	Medical
Race			
White	61	16	45
Colored	19	7	12
Sex			
Male	130	27	103
Female	27	7	20
Age (years)			
Over 45	72	16	56
Under 45	85	18	67

becomes necessary, esophagoscopy should also be done. This routine will provide a definite diagnosis in the majority of patients; however, there remains a small group in which diagnosis cannot be established before operation, and, certain instances, when even an exploratory operation does not reveal the cause of bleeding.

Management

Attention has already been called to the wide variance in methods advocated in the literature. Finsterer⁽³⁾ in Vienna, Gordon-Taylor⁽⁴⁾ in London, and Stewart⁽⁵⁾ in this country advocate early surgery in the majority of severe cases. Meulengracht⁽⁶⁾, Bowers⁽⁷⁾, and others have preferred medical management, feeling that surgical intervention is rarely indicated. It appears, however, that the most widely practiced method of managing bleeding ulcer today is a combination of medical and surgical treatment, whereby patients are selected for surgery on the basis of certain criteria, including age, the duration and severity of hemorrhage, and the response to blood transfusion. This has been the policy followed at Duke Hospital.

A majority of bleeding patients are initially admitted to the medical service and are treated with diet, supportive medication, and blood transfusion. They have been followed jointly by the internist and the surgeon during the initial phases of treatment. Of 157 severely bleeding ulcers so treated, medical management was considered unsuccessful in 38 patients, or 24 per cent. Four of these 38 died before surgery was undertaken, and 34 were operated on during the active phase of bleeding or soon thereafter. Of the 34 patients operated on, 29 survived, for an operative mortality of 14.7 per cent (see table 3). The patients selected for emergency operation were

Table 3

Immediate Deaths and Failures With Medical and Surgical Treatment of Peptic Ulcer with Massive Hemorrhage

	No. Patients	Deaths No.	Deaths Per Cent	Other Failures No.	Other Failures Per Cent
Medical Regimen	157	4	2.5	34	21
Surgical Treatment	34	5	14.7		
Total	191	9	5.7		

those who continued to bleed and in whom the blood pressure, pulse rate and hematocrit failed to return to or stabilize at a normal level during the first 24 to 36 hours of medical treatment and blood transfusion. The key to successful management of severe cases appears to be the use of large amounts of blood for transfusion and of early operation in those cases not responding to medical management. The average amount of blood used in the surgical cases was 5,000 cc., the minimum 2,500 cc., and the maximum 19,500 cc.

Two categories of patients were operated on: those who continued to bleed in spite of medical therapy (19) of the (34), and those who stopped bleeding but were operated upon before discharge from the hospital (15 of the 34). All the surgical deaths occurred in the group operated on during active hemorrhage. The operations carried out are shown in table 4. Three patients had partial gastrectomy with exclusion, but no removal of the ulcer. Two of these patients died in the early postoperative period from continued bleeding of the ulcer. One patient died before gastrectomy could be completed. Another patient had a pancreaticoduodenectomy performed for an ulcer in the second portion of the duodenum, but died in shock in the early postoperative period. The other death in the surgical series occurred in a patient who had an esophagogastrectomy for supposed bleeding varices, but who died from an undiagnosed bleeding duodenal ulcer found at autopsy, along with cirrhosis of the liver.

Follow-up Results

An important consideration in the management of peptic ulcer complicated by hemorrhage is the treatment given once bleeding has stopped. In an effort to assess the eventual outcome of both medical and surgical treatment of massive hemorrhage from peptic ulcer, a follow-up questionnaire

Table 4

Surgical Procedures
Exsanguinating Duodenal and Gastric Ulcers

Procedure	No. Cases	Deaths
Gastrectomy—ulcer excised	20	0
Posterior gastroenterostomy	4	0
Gastrectomy with exclusion-ulcer	3	2
Attempted resection	1	1
Pancreaticoduodenectomy	1	1
Esophagogastrectomy	1	1
*Vagotomy-Gastroenterostomy	4	0
Total	34	5

*Performed after bleeding had stopped

was sent to patients included in the present study. This study revealed the following: Twenty-seven of the 29 surviving operative patients were heard from; 22 were asymptomatic, 2 were still having some epigastric pain requiring diet, and 2 had subsequently died of unrelated cause. Replies were received from 88 of the 119 who were discharged from medical service following cessation of hemorrhage. Of these, 5 had subsequently died of unrelated disease. Of the remaining 83, 34 were asymptomatic, 27 had occasional ulcer-type pain, 12 had had further bleeding, 6 had had subsequent operation for ulcer, and 4 had died of subsequent gastrointestinal hemorrhage (see table 5).

Table 5

Follow-Up of 115 Patients with Peptic Ulcer Complicated by Severe Hemorrhage

	Medical	Surgical	Total
Asymptomatic	34	22	53
Occasional pain	27	2	29
Further bleeding	12	0	12
Later operation	6	1	7
Dead of disease (recurrent hemorrhage)	4	0	4
Dead of unrelated disease	5	2	7
Totals	88	27	115

Comment

Several difficulties arise in connection with a patient who is having a massive hemorrhage from the upper gastrointestinal tract. First is the problem of diagnosis already mentioned. Second is the problem of assessing the rate and continuation of bleeding, which may be quite difficult because of certain limitations of available laboratory aids. Hematocrit and hemoglobin

values are helpful, but may be misleading. Blood volume determination may be inaccurate in the presence of shock. Rate of blood flow from body orifices is quite variable. Careful clinical appraisal of the patient's general condition, including blood pressure and pulse rate, remains the most helpful approach to this problem. The third problem concerns the selection of patients for operation. In this regard a realistic appraisal of reported clinical results certainly suggests that a definite number of patients, approximately 5 per cent, will die of hemorrhage from peptic ulcer, and that a larger per cent risk later fatal hemorrhage if surgery is not carried out. Thus it would seem unwise to decide arbitrarily to treat all such patients medically. Likewise, it would appear undesirable to operate on all bleeding ulcer patients routinely, as advised by Stewart⁽⁵⁾. A judicious selection of patients for emergency operation, based on a careful appraisal of the response to medical therapy as revealed by the rate, continuation, or cessation of bleeding, is desirable.

The age of the patient and the number of previous hemorrhages counts little in the decision to operate on patients who continue to bleed in spite of medical treatment. A consideration in this regard is the duration of hemorrhage and its relationship to survival, regardless of the therapy instituted. Finsterer⁽³⁾ was one of the first to point out the definitely higher mortality in patients operated on after 48 hours of severe hemorrhage. This observation has been well substantiated by others. LeVeen⁽⁸⁾ suggests that the cause of death following prolonged hemorrhage from peptic ulcer is liver anoxia, which has been shown by others to be an integral factor in the development of irreversible shock. LeVeen showed that bleeding from the stomach or duodenum selectively and markedly reduced the blood flow through the hepatic artery in dogs.

The selection of patients for operation after bleeding has stopped is also difficult. Two factors appear significant in this group

—namely, the age of the patient and the presence of hypertension. The mortality from severe bleeding in patients past 45 is twice that of those under 45; hypertension associated with bleeding results in greater mortality. Several recent reports fail to substantiate the notion that repeated hemorrhages are associated with increased mortality.

Conclusion

The primary need of the physician in the management of severe bleeding peptic ulcer is a method for differentiating patients whose hemorrhage is likely to prove fatal if not surgically checked and patients whose hemorrhage is likely to cease spontaneously. It is unfortunate, but true, that a clear-cut clinical criterion for singling out the specific patient with uncontrollable ulcer hemorrhage remains to be found. Prophecy for prognosis in bleeding peptic ulcer is still dependent upon the accumulated data of our experience.

Two categories of severe bleeding ulcer need recognition: cases in which bleeding continues in spite of an adequate medical regimen and which thus require emergency intervention, and cases in which surgical intervention offers a chance of saving the patient's life by preventing a further fatal hemorrhage. The careful selection of patients for either of these categories is a challenge to all concerned.

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Intractable Peptic Ulcer

ADDISON G. BRENIZER, JR., M.D.

CHARLOTTE

My discussion concerns patients with peptic ulcer who are best labeled "medical failures." The term medical treatment will be used to refer to superior, continuous treatment with all its modern connotations. Surgery should not be used for those who have received anything less, but should be recommended promptly for those patients who have shown they can't or don't respond to good medical management.

Classification of Medical Failures

When the patient must be hospitalized or put to bed two or three times a year or loses three months or more from work, medical therapy has not succeeded. Failure should also be admitted when the pain is not alleviated by eating or recurs within an hour, when he cannot return to a solid diet, when sleep is continually disturbed by pain, or when narcotics are required for relief. Rarely, medical treatment should be abandoned in the face of more pressing therapeutic indications, such as diabetes mellitus, bronchial asthma, rheumatoid arthritis, migraine or renal stones.

Table 1
Indications for Surgery
(Private Cases, 1949-1954)

	Per Cent
Medical failure	67
Bleeding, massive	20
Obstruction, total	13
	100

Table 1 shows that medical failures continue to constitute the largest group of cases referred for surgical treatment—although this number should represent no more than 10 to 15 per cent of all cases of peptic ulcer. The group is important not only because of its relative size, but because of pathologic considerations to be discussed later. Medical failure primarily implies persistent refractory pain (table 2), but the group must necessarily include

Table 2
Symptoms in Medical Failures

	Per Cent
Intractable pain	50
Pain and mild obstruction	20
Pain and vast bleeding	20
Pain and vomiting	10

some cases with partial obstruction and past episodes of minor bleeding.

Significant Factors

Age, sex and duration of symptoms

Table 3 shows the distribution according to age and sex, and the duration of symptoms in my series of intractable cases. The

Table 3

Age, Sex and Duration of Symptoms	
Age at operation	
Average 45 years	Range 30-74 years
Duration of symptoms	
Average 12 years	Range 2-33 years
Sex ratio	
3 males to 1 female	

total duration of symptoms and the patient's age are not necessarily important, since both young and old may be refractory to treatment, and a few ulcers of short duration may fail entirely to respond to medical therapy⁽¹⁾. Sad to relate, the time factor is usually well explained by the natural reluctance of the physician to admit defeat and of the patient to seek surgery. Many patients who have been relieved by surgery ask, "Why didn't someone tell me years ago that I could be this well?" Statistics tend to show that the medical failures include a higher percentage of women than is usual in peptic ulcer.

Pathology

The next questions that arise are "Why does superior medical treatment fail?" and "Can we spot the cases that will not respond to medical treatment?" From the standpoint of pathologic physiology these patients almost universally show continuous hypersecretion and hyperacidity of gastric juice. The pathologic factors can be seen by studying the location of ulcers in table 4 and the pathologic findings in table 5. Symptoms are poorly controlled when there are multiple ulcers, when the ulcer lies upon or adjacent to the pyloric sphincter⁽²⁾, and when blind perforations occur on the pancreas, liver, bile ducts, or large blood vessels^(1,3). More rarely, the notably refractory ulcerations are found near the gastric cardia or in the second portion of the duodenum—locations where neoplasm cannot be excluded.

Table 4
Location of Ulcers
(Private cases)

	Per Cent
Duodenal	82
Gastric	13
Gastric and duodenal	5

Personal factors

There are also refractory personal or personality factors which contribute to medical failure. Traveling salesmen, truck drivers, transients, school teachers and night workers are notoriously difficult patients to manage. Some stubborn individuals refuse to stop smoking or drinking, and some are severely psychoneurotic or are chronic complainers with low resistance to pain. The latter can often be recognized by their exaggerated reaction to venipuncture, pressure on the abdominal aorta, or a gentle rectal examination. A few will be found to be addicted to barbiturates or narcotics which have been carelessly prescribed.

In deciding to abandon medical therapy one should be wary of the refractory personality factors—especially drug addiction—and place most reliance on the pathologic findings. Surgery should not be used in the refractory patient unless refractory disease is present.

Surgical Treatment

"What is the best surgical treatment in these cases?" It is improbable that a final answer can be given. Subtotal or partial gastrectomy remains my preference, because in my experience the results have been too good, and the morbidity and mortality too low to abandon it for a variety of procedures which have been proposed and reported in the past 10 years. The type and location of anastomosis seems relatively unimportant, provided the resection is adequate. Subtotal gastrectomy promptly and strikingly relieves the previously refractory pain. For most patients this relief is most worth while, despite a few annoying, but largely transient side effects.

The pathology encountered in the refractory group provides a moderate number of difficult technical problems, as well as a small number of "non-resectable" lesions. These cases, along with acute, massive bleeding, provide the potential sources of surgical mortality in peptic ulcer. In order to avoid such catastrophes as trauma to the bile ducts, traumatic pancreatitis and

Table 5
Pathology of Intractable Ulcers

	Per Cent
Blind duodenal perforation	50
Pyloric channel	19
Multiple	14
Duodenal	10
Duodenal and gastric	4
Gastric and stomal	17

leaking duodenal stumps, the occasional use of the two-stage gastrectomy described by McKittrick or some modification of the Finsterer pyloric exclusion operation may be necessary⁽⁴⁾.

Complications

Table 6 shows the complications associated with subtotal gastrectomy which we encountered. Although 57 per cent of our patients had no complications, nearly 40 per

Table 6
Complications in Gastrectomy for
Medical Failure

	Per Cent
None	57
Major non-fatal complications	39
Mortality	4

cent had a major complication such as pulmonary infarction, edema, or atelectasis; myocardial infarction; bleeding from omentum or suture line; pancreatitis, cystitis, and wound disruption. There was one death—giving a mortality of 4 per cent. The pathology and course of this case make it worth summarizing.

A 53 year old, short obese diabetic male had severe pain and partial obstruction from a pyloric channel ulcer which perforated while he was being prepared for surgery. At laparotomy three hours later an enormous crater, encircling more than one-third of the pylorus, was found. The large perforation on the posterior superior wall could not be closed without producing complete obstruction. Immediate gastric resection resulted in acute fulminating pancreatitis, followed by jaundice, paracolic abscess, thrombophlebitis, and pulmonary infarction. In spite of supportive therapy, ligation of the femoral vein, and drainage of the abscess, he died of peritonitis on the ninth postoperative day. The local pathologic picture in this case was almost unbelievable. A two-stage procedure might have prevented the subsequent course of events.

Returning to the long-term side effects, one-fourth of the patients were temporarily annoyed by the dumping syndrome, but this has not been a prolonged or major problem. Moderate loss of weight was observed routinely in the 60 per cent who were obese

from prolonged overfeeding prior to operation, but less than 10 per cent remain too thin. Approximately 30 per cent whose weight was subnormal prior to surgery because of vomiting have all regained the normal range. There has been no recurrence of the ulceration.

Table 7
Results of Gastrectomy

	Per Cent
Superior	83
Good	9
Total improved	92
Poor	4
Death	4
Total	8

Table 7 summarizes the long-term results of treatment in this group of patients, who were followed personally up to six years. It can be seen that 92 per cent were improved. The remaining 8 per cent, with results classified as less than superior, represent those who have failed to maintain a satisfactory state of nutrition. Results were poor in a narcotic addict who has continued to seek medical treatment for a variety of complaints, but who has no evidence of recurrent peptic ulcer. The inferior results, in fact, are confined to patients having severe personality problems, and the one death occurred in the patient with the most distorted pathologic anatomy.

* * *

Abstract of Discussion

(Dr. Felda Hightower, Winston-Salem, moderator)

Dr. Hightower: The first question is addressed to Dr. Brenizer: Please describe the two-stage procedure and its application.

Dr. Brenizer: This operation, which bears the name of McKittrick, is actually a modification of Finsterer procedure. The object is to avoid the sac in the duodenum. When the relation of the viaduct is uncertain, or, in the very aged, when it might be desirable to divide the procedure into two easy stages, he divides the stomach at the incisura. The closure is always in good shape, and the only difficulty that may arise is in cases of obstruction, where the mucosa may be so edematous that if the mucosa isn't turned in as a separate layer the closure may be too bulky. Anastomosis is then carried out in the usual fashion from three weeks to six months later. The sooner one returns to make a new incision or open the same incision, the better. Duodenal ulcers always heal, and if you return no sooner than six weeks, all the incur-

Summary

1. Failure of medical treatment is the commonest surgical indication in peptic ulcer.

2. Medical treatment fails largely because of pathologic factors such as the location, depth and number of peptic ulcers. Personal or personality factors also contribute to failure.

3. Subtotal gastrectomy is the most satisfactory surgical treatment.

4. Good results can be expected in at least 90 per cent of cases. Personality factors play a major role in the few poor results.

5. Surgical mortality is low and may well be reduced by more frequent use of two-stage procedures.

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vature is gone and the two stages are extremely safe and easy. This operation was used extensively at the Massachusetts General Hospital because of the lower mortality. It has been criticized, of course, because it does subject the patient to two anesthetics.

Dr. Hightower: I have several questions directed to the panel. The first three are related to hemorrhage. I'd like to ask Dr. Shingleton if he will discuss them.

What are the results of vagotomy for bleeding peptic ulcer?

Dr. Shingleton: Dragstedt originally advised this method even in cases of severe bleeding. I have heard recently that he has abandoned it, however. Dr. Winston, from wide experience, says that he has never advocated it during the phase of active bleeding. He believed, however, that after bleeding stops it is a desirable procedure, and that the overall results reported in the literature indicate a

lower incidence of hemorrhage following vagotomy gastroenterostomy than that associated with subtotal gastrectomy. I would say in summary that I don't know of anyone who advocates vagotomy in the active phase of bleeding.

Dr. Hightower: Is there any difference in the incidence of bleeding ulcer according to race?

Dr. Shingleton: In our group of patients the incidence was about even.

Dr. Hightower: What about the use of Gelfoam?

Dr. Shingleton: We have not given any of these hemostatic agents by mouth to patients having extensive bleeding. I understand that when Gelfoam is used, it is necessary to buffer the gastric acid secretion, since Gelfoam will not produce coagulation in the presence of acid. From what I have read in the literature, the results have not been satisfactory.

Dr. Hightower: The next question is for Dr. Wadsworth. Will the type of incision used for perforated ulcer influence the occurrence of evisceration?

Dr. Wadsworth: I think it might. We have always used a Langenbeck incision, closing it with a single layer and without suturing the peritoneum but brushing it back from the linea. In Detroit we had perfect dehiscence with that method. I have

also used a heavy grade of silk for the linear closure.

Dr. Shingleton: I am a strong advocate of steel wire for many of these closures. I hesitate to use silk in cases of perforation because of the danger of contamination.

Dr. Hightower: Discuss the treatment of severe dumping syndrome following subtotal gastric resection.

Dr. Shingleton: Despite the advantages of subtotal gastric resection, dumping is the most distressing complication that we meet, and is probable much more frequent than we realize. Many subtotal gastric resections were done in teaching hospitals or were followed by physicians outside the hospital. Some patients suffer considerably for a long time from dumping, and a large number experience the syndrome for varying periods postoperatively. Fortunately most of the cases clear up, but others defy all treatment.

Dr. Hightower: When is resection used for clinically benign gastric ulcer? Do you do a radical resection?

Dr. Shingleton: I think one could say that if the crater doesn't disappear within a reasonable length of time, surgery should be considered—certainly if the ulcers continue to bleed, even when other symptoms are largely absent. Resection is also indicated in the presence of pernicious anemia.

Anesthesia for the Patient in Shock

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Papers on shock probably are as numerous as those on any single phase of surgery. Some of these writings date back many years, and the context has constantly changed with unfolding knowledge concerning the mechanics, production, prevention, and treatment of the condition. Great strides were made in World War II, which gave us an opportunity to study this problem first hand, on a large scale, and to develop new techniques of prevention and treatment. Since anesthetic agents must be used with many of these patients, it behooves us to try to understand something of what is going on in order to utilize our greatest skill at a time of critical need.

Definition

What is shock? Of all the numerous def-

initions which have been given, the most frequently quoted is that of Wiggers (cited by Burststein⁽¹⁾). He stated that shock is a syndrome in which reduction of effective circulating blood volume and blood pressure are of basic importance and in which impairment of circulation steadily progresses until it eventuates in a state of irreversible circulatory failure. These are big words. Stephen⁽²⁾ puts it more simply: "It develops when there just *ain't* enough blood going around."

In general we ascribe shock to one of three major conditions: (1) *trauma*, (2) *hemorrhage*, and (3) *toxicity*; or it may be due to a combination of any of these. Though the initiating factors vary, all produce similar physiopathologic reactions, which Burststein⁽¹⁾ calls sustaining factors. These factors create a vicious cycle which it is im-

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portant to recognize and treat promptly and effectively if catastrophe is to be avoided.

The Mechanics of Shock

Burstein⁽¹⁾ has given as clear a description as we have available. Reduced volume of circulating blood due to one of the initiating factors mentioned above leads to decreased venous pressure, which gives rise to decreased venous return to the heart. This reduced cardiac intake, and consequently output, lowers the arterial blood pressure, decreases the vascular supply to tissue cells, and results in cellular asphyxia. Products of this lowered oxidation of tissue aggravate the cycle by increasing capillary permeability, so that more vascular fluid is lost into the tissue spaces, producing hemoconcentration. With hemorrhage⁽³⁾, however, we get a compensatory dilution of the remaining blood with fluid from the tissues, giving first a state of hemodilution, followed in late stages by hemoconcentration. This hemodilution is stressed particularly by Beecher⁽⁴⁾ in his classic study of resuscitation and anesthesia for wounded men in the European theater during World War II.

Experimental Work

It is of interest to trace some of the work that has been done in the study of various anesthetic agents and their effect on the body in conditions of shock. Cattell⁽⁵⁾ commented as early as 1923 on the fact that the secondary vasoconstriction, with an increase in blood pressure after an initial drop, seen in normal patients following the administration of ether did not occur in patients in shock. In 1936 Essex and Seeley⁽⁶⁾, working with dogs, found that Sodium Amytal anesthesia, given either alone or prior to ether, definitely delayed the production of shock and death. It was noted that loss of body fluid was less rapid when Amytal was used.

These experiments, done with the production of shock by repeated manipulation of the intestines, received widespread attention until Beecher⁽⁷⁾, performing the same experiment in 1942, got the same result, but found that if shock was produced by hemorrhage, Amytal had not significant shock-delaying action over ether. He pointed out that there was nothing in Essex and Seeley's work to indicate safety in the use of Amytal for shocked patients, particularly wounded men—that in reality it was a dangerous drug whose only benefit was an anti-

dehydration effect—a single factor in shock. Essex⁽⁸⁾, in 1943, confirmed this observation, and urged that Beecher's warning be heeded. It was about this time that the use of curare in anesthesia was first reported⁽⁹⁾, and it was prophesied that here was an agent that would allow lighter planes of anesthesia to be used; but there was no extensive investigation of its use until later.

During the war years, 1942-1945, a number of extensive investigations into the problem of anesthesia and shock were carried out, of which Beecher's work stands out^(4,10). He emphasized that the degree of shock in men wounded in battle precisely paralleled the blood loss, and conversely that clinical recovery from shock resulted promptly from the administration of whole blood⁽⁴⁾. He was unable to find a single case of "irreversible" shock through the Italian campaign. To be sure, there was some exsanguination when circulation to vital centers was absent for long periods, but he emphasized that application of the term "irreversible shock" to such cases had no place in treatment of the wounded. "Shock seen here was due to blood loss and was cured by blood administration." He condemned the use of Pentothal except in small amounts to supplement local anesthesia, and felt that men tolerated ether much better, remembering of course that cyclopropane was unavailable in the field hospitals. He accumulated a mass of data that has been used extensively in military medicine, and will apply in any catastrophe involving large numbers of wounded.

Hershey and Rovenstine⁽¹¹⁾, in 1944, reported 4 cases in which cyclopropane had elevated the blood pressure and slowed the rapid pulse to normal in patients in severe hemorrhagic shock. This observation provoked experiments on dogs in which bleeding to shock levels was followed by cyclopropane anesthesia, and the same effect was observed in well controlled experiments. This result led to their most extensive investigation on experimental shock and anesthetic agents as factors in circulatory reactions induced by hemorrhage⁽¹²⁾. Using similar levels of anesthesia in a group of 70 dogs, they observed circulation in the capillaries of the mesentery while different agents were used and bleeding was done in divided amounts every half hour on the basis of percentage of body weight until maximal effects were

noted. The methods used were (1) local procaine block of the abdomen only, used as a control, (2) intravenous morphine, (3) cyclopropane, (4) sodium pentobarbital, (5) sodium Pentothal, and (6) ether.

They observed the rates of omental blood flow, blood pressure, blood loss expressed as percentage of body weight, the degree of vasomotion of the arterioles and capillary bed, the reaction of the vessels to locally applied epinephrine, and the presence and concentration of vasodepressor substances in the blood stream following hemorrhagic shock. Clinically, they then judged the response of the animal to transfusion with his own blood three hours after the last bleeding.

The control animals tolerated the procedure best, both experimentally and by the clinical response to transfusion. They withstood a blood loss of 5.3 per cent of body weight, and 92 per cent responded favorably to transfusion three hours later. The rate of omental blood flow was good, with vasoconstriction but no capillary slowing. The response to epinephrine increased as bleeding progressed. Vasodepressor substances did not appear in the blood.

Animals under cyclopropane anesthesia withstood a blood loss of 4.8 per cent, and in 89 per cent were restored by transfusion three hours later. Omental blood flow was good, with early production of vasoconstriction that was maintained throughout. Epinephrine reactivity was increased and maintained, and no vasodepressor substances appeared in the blood stream.

Animals given morphine withstood a blood loss of 4.6 per cent, and 70 per cent were restored by transfusion three hours after termination of bleeding. Omental blood flow remained good, with early vasoconstriction. Vasomotion increased at first, then returned to the original level after maximal bleeding. Epinephrine reactivity increased. Vasodepressor substances did appear in the blood after maximal bleeding.

Animals under ether withstood a blood loss of 4.1 per cent, and only 20 per cent survived when given transfusions three hours after the last bleeding. Omental blood flow slowed sooner than with any other type of anesthesia, with spontaneous collapse occurring in almost all dogs soon after the last bleeding. Vasomotion decreased even prior

to bleeding. There was a progressive decrease in the epinephrine response after bleeding, and vasodepressor substances appeared in the blood stream earlier than in any other group.

When pentobarbital was used, a maximal blood loss of 3.8 per cent of body weight was obtained, only 25 per cent of the animals surviving transfusion three hours after the last bleeding. There was a progressive decrease in blood flow after bleeding, while vasomotion increased at first and then decreased with greater hemorrhage, being absent 30 minutes after the last bleeding, as was epinephrine reactivity. Vasodepressor substances appeared 45 to 90 minutes after the last bleeding.

Under Pentothal anesthesia, the maximal blood loss was 4.0 per cent of body weight, and no animal survived the three-hour transfusion. Abrupt deterioration of omental blood flow occurred after the last bleeding, vasomotion was lost as early as with ether, epinephrine reactivity decreased abruptly after the last bleeding, and vasodepressor substances appeared suddenly after the blood loss reached 3.5 per cent.

As one can see, these experiments have two distinct shortcomings—the assumption that the reaction of the mesenteric vascular bed will be comparable to that in all other capillary beds of the body, which may not be true; and the inevitable difficulty of comparing depths of anesthesia between inhalation agents and intravenous ones. Nevertheless, in all other respects the experiment was carefully controlled, and the clinical condition of the animals closely followed the laboratory appraisal.

The last bit of experimental work to be mentioned was done in 1951, and concerned the effect of inhalation agents on the myocardium of dogs, using the heart-lung preparation⁽¹³⁾. Here it was found that 80 per cent nitrous oxide given with 20 per cent oxygen produced minimal cardiac dilatation. Cyclopropane, in concentrations as high as 50 per cent, likewise produced very little cardiac dilatation. Divinyl ether, even in high concentrations, gave more dilatation than the preceding agents, but far less than chloroform or diethyl ether. These last two drugs produced some cardiac dilatation even before anesthetic levels were reached, and profound dilatation occurred in levels com-

parable to the second and third planes of anesthesia. In this experiment it was felt that the many variables associated with the use of live animals had been eliminated, and the true effect of the drug used could be determined.

The Shock Patient and Surgery

The patient in shock, whether it be from intestinal bleeding or associated with crushing injuries with or without hemorrhage, must be *continually* resuscitated in the preoperative period. Attempts must be made at correcting dehydration and electrolyte imbalance; above all blood replacement, preferably with whole blood of the patient's same type, should be carried out until the patient's blood pressure rises to 90 or 100 mm. of mercury systolic, and the pulse rate falls below 120 per minute. During World War II, when blood of the proper type was not available, low titer "O" blood was used with no increase in untoward reactions, and this possibility should be considered in emergencies. When blood is not available, plasma expanders such as dextran⁽¹⁴⁾ and polyvinylpyrrolidone have proved valuable. The use of pooled plasma has decreased markedly following the high incidence of infectious hepatitis associated with it in World War II and in Korea. In the presence of uncontrollable profuse hemorrhage, the time for anesthetic induction cannot be postponed until the blood pressure, pulse, and clinical condition have improved. To delay here means certain loss of the patient.

Preanesthetic medication is of vital importance in these patients, and requires far smaller doses than usual because of the already depressed metabolism in shock. It has been found that patients with injuries have far less pain than was originally supposed⁽⁴⁾, and the addition of average doses of narcotics adds another respiratory burden to the already oxygen-deprived tissues. If pain is a factor, very small doses of narcotics are given intravenously to best gauge their effect and obviate the picture of sudden rapid absorption from subcutaneous or intramuscular depots as the circulation improves, with resulting sudden, profound depression that may mean death. It is frequently best to omit narcotics altogether and give only drying agents, preferably atropine, by intravenous or deep intramuscular injection, if the circulation is adequate to pick

it up. Barbiturates, with their depressant properties, should be omitted from the preanesthetic medication, for the patient is already depressed. Only if severe anxiety is present would one give small doses intravenously. To summarize: Give much smaller doses; give them so they will be absorbed at a dependable rate.

Choice of agent

If the operative procedure is confined to a small area so that relatively small amounts of a diluted drug can be used, local or regional block will produce a highly desirable type of anesthesia. For example, in abdominal operations bilateral intercostal block, well performed, has many advantages. It may be supplemented with nitrous oxide—oxygen analgesia in concentrations of 50 per cent each, with high flow rates. Relaxant drugs are seldom needed, as there is usually marked muscular relaxation in the shocked patient. If the operative procedure is to be an extensive one, involving multiple areas and requiring large amounts of local anesthetic agent, it is preferable to use light general anesthesia and avoid the risk of toxic reactions from overdosage in this already poor risk patient.

Among the inhalation agents cyclopropane stands out both clinically and experimentally as the best choice in shock patients. It can be given with very high concentrations of oxygen, it produces the least physiologic disturbance of any of the "complete anesthetic agents," and it is well accepted by the patient. Here again one must proceed with caution, as patients in shock require far less drugs than do normal patients, and obtain complete muscular relaxation in lighter planes of anesthesia. Since this is such a potent and rapidly acting agent, the many precautions attending its use should be practiced and a constant vigil maintained, avoiding deep planes of anesthesia and assuring adequate ventilation of the patient at all times. Its major contraindication is in patients with disturbances of cardiac rhythm, but even here, if the plane of anesthesia is light, it may be useful. One must be prepared to justify his choice of another inhalation drug over cyclopropane in shock.

The use of ether in the shocked patient is much disputed. Experimentally it has produced the earliest deterioration of the cir-

culatation and the most profound physiologic changes among the agents commonly employed. As such its use would seem to be condemned. Beecher⁽⁴⁾, however, has stated that its circulatory depressant effects do not seem as profound in man as in animals, and having had many opportunities to observe its use in wounded men in shock, he concluded that it certainly has a place. It should not be passed over lightly, particularly if cyclopropane is unavailable, as was the case in military medicine in wartime. If used, it must be remembered that the concentration required to produce light anesthesia in shock is far less than in the normal patient, and light anesthesia usually provides all the muscular relaxation required.

Nitrous oxide is generally considered to be too weak an agent to use alone in healthy patients, but it may occasionally have a place where only light anesthesia is desired and where it may be obtained with lower concentrations. Its only disturbance of physiology is that due to oxygen lack. If used with at least 30 per cent oxygen and high flow rates, it may provide sufficient anesthesia for procedures other than abdominal surgery, requiring little if any other drug. The use of the barbiturates in doses normally given in conjunction with nitrous oxide—oxygen mixtures is mentioned only to be condemned. Very small doses of Pentothal may be used as a supplement, but only in short procedures, as the prolonged use of this drug easily produces circulatory depression. If a long operation is anticipated, other means of obtaining anesthesia should be considered.

Reports of good results from Pentothal in shock are available⁽¹⁵⁾, but these instances are isolated and by no means the rule. The drug had extensive use in Korea and World War II, but here it was used only in good risk patients for procedures requiring little or no relaxation. Light ether was preferred in the shocked patient, since cyclopropane was not available.

Ethylene is a little more potent than nitrous oxide, and its use may be gratifying in some cases of shock, particularly where little relaxation is required. Care must be taken to supply at least 30 per cent oxygen, and flow rates should be high. Ethylene has the disadvantage of greater explosiveness

with higher concentrations of oxygen, a definite factor against its routine use.

Spinal anesthesia has no place in the patient in shock. There are no favorable reports on its use, even in small doses in lower extremity procedures. Once given it is impossible to control, and in a patient whose circulating blood volume is already decreased, it can only tend to cause further discrepancy between the blood volume and the vascular bed. Taylor, quoted by Beecher⁽¹⁶⁾, states that "spinal anesthesia spells euthanasia for the patient in shock."

Trichlorethylene, chloroform, and ethyl chloride are mentioned only as drugs to be avoided in shock. The reasons are obvious—they are profound depressants and have narrow margins of safety at best.

Muscle relaxants frequently are not needed because, as mentioned previously, shock itself is accompanied by profound muscular relaxation. In some cases, however, relaxation is inadequate, and here they serve a useful purpose. Dosage should be one-half to one-fourth that given to normal patients initially, followed by smaller supplementary doses as required. Respiration should be assisted when these drugs are used, in order to insure adequate oxygenation and elimination of carbon dioxide. Care should be taken to keep the patient breathing spontaneously if at all possible, as controlled respiration frequently precipitates serious falls in an already lowered blood pressure.

Technique of administration

The technique of administering anesthesia to a patient in shock depends on the agent chosen. Cyclopropane is probably best administered in a semi-closed system, with large amounts of oxygen. A smaller than usual concentration of the drug will be found adequate for most surgery. The other inhalation agents should not be used in a closed system, as it predisposes to the accumulation of carbon dioxide. This makes for greater respiratory effort at a time when the resources of the patient are precariously low, and can precipitate a progressive downhill course. Non-rebreathing techniques are highly recommended and much preferred over the partial rebreathing system with carbon dioxide absorber; there is less resistance to be overcome and less chance for accumulation of carbon dioxide.

Ventilation should be adequate at all

times. Hyperventilation causes few if any complications, but the effect of hypoventilation is to produce steady deterioration of the circulation. A patent airway should be assured. Intubation can frequently be accomplished without resorting to muscle relaxants, and such drugs should not be used routinely for this purpose. Care should be taken to avoid gastric dilatation, and insertion of a Levin tube with gastric lavage should be mandatory in any abdominal or thoracic procedure.

Conclusion

This discussion has only touched upon the subject of shock; many hours could be devoted to it. Each patient is an individual to be evaluated separately, not given a "routine" treatment for his condition. If routines are blindly followed, they will lead only to disaster. It is particularly for the patient in shock that the anesthesiologist must call forth all his knowledge and apply his greatest skill.

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Vaginal Hysterectomy

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LUMBERTON

Langenbeck⁽¹⁾ accomplished the first successful vaginal hysterectomy in 1813, without opening the peritoneal cavity, without anesthesia, without knowledge of asepsis, and practically without assistance. There was severe hemorrhage and the patient was approaching collapse. Langenbeck compressed the bleeding with his left hand and sutured the wound with a needle and ligature. He tied the ligature by grasping one end with his teeth and the other with the right hand. At this stage the patient appeared to be dying, but was revived by cold water dashed over her face. She lived for 26 years following the procedure.

In 1829 Warren⁽²⁾, of Harvard Univer-

sity, made the first American report of the procedure. All the uterus except the fundus was removed without anesthesia, sutures, or clamps. The patient died on the fourth postoperative day. The procedure lapsed into disuse at the end of the century but regained popularity after 1940.

Vaginal hysterectomy is now accepted as one of the most versatile of the major procedures. Kennedy and Campbell⁽³⁾ have said, "In vaginal surgery as in elective surgery generally, operative measures should be selected with prudence." Vaginal hysterectomy should be used enthusiastically when there are valid indications for it. The importance of the abdominal approach in the

control of complicated intra-abdominal pelvic diseases however, should always be remembered.

Indications

There is a place for both abdominal and vaginal hysterectomy, usually with clear-cut indications or contraindications for each⁽⁴⁾. The most valid indication for the vaginal method is prolapse of the uterus⁽⁵⁾. This condition, in the majority of the cases, is due to the relaxation of the supports of the bladder, rectum, and uterus caused by childbirth^(5b). In the nulliparous patient, prolapse may result from congenital weakness of these supports.

The supports of the pelvic organs are the pelvic fascia and the levator ani muscles. The pelvic fascia is reinforced in several places to form the pubocervical, the cardinal, the uterosacral, and the round ligaments. In addition to the pubocervical ligament, the true support of the bladder is now thought to be mainly muscular—the pubococcygeous muscle. This muscle originates in the pelvic surface of the pubis, along the line from the obturator foramen to the lower border of the symphysis, and passes backwards into the coccyx and the anococcygeal raphe. In position, it supports the bladder. The cardinal ligaments are condensations of the lower margins of the broad ligament. The uterosacral ligaments originate in the posterior wall of the cervix at the level of the internal os, and are attached to the sacrum. These ligaments pull the cervix backwards and also form part of the pelvic floor. It is debatable how much support the round ligaments provide. They should always be brought to the vaginal cuff. When the operative treatment of prolapse is undertaken, great care should be taken to repair the defects in the above supports.

A second indication for vaginal hysterectomy is uterine prolapse of the first and second degree, with relaxation, cystocele, rectocele, and enterocele. Patients in this category are usually in late menstrual or postmenopausal life or have first and second degree prolapse with multiple findings and symptoms associated with the uterus, or myomas of the uterus no larger than a three months' pregnancy.

There are three indications for hysterectomy for myoma: (1) increase in size, (2) hemorrhage, and (3) pain. If these fibroids

are not too large and if the supportive structures are relaxed, a vaginal hysterectomy may be considered. In performing a vaginal hysterectomy, the surgeon should be fortified with the knowledge that at any moment, should the necessity arise, the abdominal approach may be used.

Contraindications

The contraindications for vaginal hysterectomy are as follows:

1. Malignancy of the cervix
2. Malignancy of the endometrium
3. Enlarged uterus due to myomas (Myomas which are too large cannot be removed by this route.)
4. Pelvic inflammatory disease
5. Endometriosis
6. Ovarian tumors
7. Fixation of ligaments
8. Post-irradiation fixation
9. Previous abdominal surgery
10. Pseudo-descensus, with long cervix
11. Narrow vagina
12. Lack of mobility
13. Possibility of other intra-abdominal disease
14. Lack of experience, confidence, and enthusiasm of the surgeon.

Preoperative Preparation

The patient should have a complete history and physical examination, with particular reference to cardiovascular stability. Anemia should be corrected; obesity should be reduced as much as possible; protein, fluid and electrolyte balance should be optimum; the mental attitude of the patient should be studied, and the expected results should be explained to her. If any deficiencies are found, they should be corrected before the procedure is begun.

The entire abdomen and perineum are shaved the night before the operation. It is most important for the abdomen to be prepared. Although we have not yet had to use the abdominal route in a proposed vaginal hysterectomy, the time will undoubtedly come. The preparation is the same as for any other operation with the exception of the vaginal preparation, which is done in the operating room. The patient is given an appropriate antibiotic, starting 24 hours prior to surgery. Any other complaints referable to the abdomen should be diagnosed by appropriate methods prior to vaginal hysterectomy.

Operative Technique

The operative technique used is that described by Heaney⁽⁶⁾, including anterior and posterior repair when cystocele and rectocele are present. If a urethrocele is present, it is also repaired. It is felt wise to investigate the ovaries in all cases, and if any lesion is found, salpingo-oophorectomy should be performed. Some surgeons remove the adnexial organs routinely if the patient is past 40 years of age, feeling that carcinoma of the ovaries will thereby be prevented⁽⁷⁾. We do not adhere strictly to this opinion, but individualize the cases.

The anesthesia used depends upon the needs of the patient and the ability of the anesthesiologist. There are advocates of general and spinal anesthesia. Each method has been used satisfactorily.

Postoperative care is made much easier and the patients do better if they receive blood as soon as the procedure is begun. The average patient receives 500 cc. of blood, followed by the administration of fluids and the amount of electrolyte indicated in each case.

Postoperative Care

The patient is returned to her room at an appropriate time following surgery. Bladder drainage, using a Foley catheter which was placed in the bladder in the operating room, is connected with bedside drainage. Depending upon the patient's age and cardiac status, she may or may not be given nasal oxygen. The blood pressure, pulse, and respiration is taken every 15 minutes until stabilized and then every 4 hours for 24 hours. At any change, appropriate action is taken. Antibiotics are continued. In 24 hours the usual patient is up, walking, disconnected from the bedside drainage, with her catheter in place. Within 72 hours, the catheter is removed and the patient is catheterized every eight hours until residual urine is 50 cc. or less. The patient is then discharged from the hospital with the proper convalescence instructions. She is usually fully recovered in five to seven weeks.

Complications

Studies of total hysterectomies during the past decade indicate an expected operative mortality of not greater than 2 per cent. The postoperative morbidity rate, however—which is the index of the risk to

the patient's life—is 35 per cent⁽⁸⁾. Numerous efforts to prevent postoperative morbidity have been reported during the past seven years. As outlined by Johnson and Burman⁽⁹⁾, the morbidity rate following total abdominal hysterectomy varies between 27 and 41 per cent. The criteria for diagnosing morbidity varies somewhat from author to author. Terzian and Timpaine⁽⁸⁾ follow the criterion of the Joint Committee of Maternal Welfare—an oral temperature of 100.4 F. or more on two consecutive days after the first postoperative day, the reading being taken four times daily.

Many recent publications of large series of vaginal hysterectomies report few or no deaths. This might lead one to believe that complications are exceedingly infrequent or of minor importance. Such is not the case. Complications following vaginal hysterectomy with anterior and posterior repair are distinctly more numerous, as a rule, than those associated with abdominal hysterectomy. They are perhaps most often related to the type of repair. It now seems that there are more complications with cystocele and rectocele repair in vaginal hysterectomy than with similar repair work in abdominal hysterectomy. Vaginal hysterectomy, *per se*, however, is accompanied by less morbidity, causes less postoperative discomfort, and is less hazardous than the abdominal approach⁽¹⁰⁾.

In 5,078 vaginal hysterectomies reported by Allen and Peterson⁽¹¹⁾, the mortality was 0.18 per cent.

Gwillim⁽¹²⁾ has stated that, while the mortality of vaginal hysterectomy alone is less than that of abdominal hysterectomy, the addition of extensive cystocele and rectocele repair increases the mortality to three times that of the abdominal procedure. Other surgeons may obtain different results, but this report dramatically shows that the most important single, complicating factor is related to anterior and posterior colporrhaphy. There are, however, certain other complications to vaginal hysterectomy which merit consideration:

1. Complications common to vaginal and abdominal hysterectomy are as follows:
 - a. Hemorrhage
 - b. Shock
 - c. Infection
 - d. Intestinal obstruction and ileus

- e. Phlebitis
- f. Pulmonary complications
- g. Urinary tract complications
 - (1) Ureteral obstruction and fistulas
 - (2) Vesical injuries, fistulas, retention, and incontinence
 - (3) Urinary tract infection
2. Complications peculiar to vaginal hysterectomies include the following:
 - a. *Shortening of the vagina* is one of the chronic or late complications. This, of course, can produce a very unhappy effect on the patient and can be adequately prevented by taking care not to remove more of the vagina than is necessary.
 - b. *Granulations of the vaginal cuff* represent a form of lower-grade inflammatory response and also possible evidence of improper apposition of the vaginal mucosa. This may be aided in some instances by drainage at the time of the procedure, apposition of the mucosa, and early use of medicated vaginal suppositories with douches. Of course, cauterization of the granulations is usually effective.
 - c. *Enterocoele* may occur several months or sometimes years following the procedure. This complication is due to a weakness behind the apex of the vagina between the vagina and the rectum, where originally there was probably a slight indentation of the peritoneum. This complication may also occur after the uterus has been removed abdominally, but it is much more common following removal by the vaginal route. The important way to prevent the occurrence of an enterocoele is proper posterior repair.
 - d. *Stenosis* is an easily avoided complication. It can be prevented by not removing too much of the vaginal wall and by using the candle exercises.
 - e. *Prolapse of the Fallopian tubes* is a rare complication and follows the use of drainage through the vaginal cuff. This can be avoided by proper closure of the cuff. When this complication develops, the granular mass is removed easily by

ligation and amputation under light anesthesia.

- f. *Endometriosis transplantation* of the vaginal vault at operation is also a rare complication. It is treated with coagulation or excision.
- g. *Prolapse of the vaginal vault* has been treated by various methods of repair, at times successfully. Vaginectomy is the most undesirable procedure, but the most curative. Anterior and posterior colporrhaphy includes tightening of the fascia and muscles, using fascial strips from the rectus sheath. Each case should be considered individually. It is felt that if proper support is given at the time of vaginal hysterectomy, this complication will continue to be extremely rare.

Summary

1. Vaginal hysterectomy is a valuable procedure when done with proper indications.

2. Mortality rates from this procedure are low, but morbidity rates, especially when accompanied by anterior and posterior repair, are relatively high.

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Unusual Cranial Deformities and Associated Anomalies in Defective Persons

JULIAN LOKEY, M.D.

KINSTON

During sixteen months of service in an institution for the care and training of mentally defective persons, a number of unusual anatomic entities have come to my attention. Among some of the more fascinating are the following syndromes:

1. Ocular hypertelorism (Crouzon's disease, Greig's hypertelorism, or hereditary craniofacial dysostosis)

2. Oxycephaly (acrocephaly, tower skull, steeples head)

3. Gargoylism (Hurler's syndrome)

Ocular Hypertelorism

In an institutional population of 1,000, 6 patients represent rather classic examples of ocular hypertelorism. Greig, in 1924, described this unusual craniofacial deformity, which at that time was considered rather rare; however, since then many additional children have been found to demonstrate Greig's description, and the condition today is considered neither rare nor commonplace. There unquestionably are wide variations of the deformity; however, the obvious facial pattern readily suggests its presence. Not all persons so affected are mentally deficient, though the majority of classic examples fall into the imbecile group, and others come within the borderline or moron range. Of the 6 patients at Caswell Training School 3 are males and 3 are females, aged 12, 14, and 18. All have intelligent quotients of between 36 and 56. Uniformly they are placid, amicable, friendly, and happy—very much like the mongoloid. Indeed, students in the past have associated the two conditions. I feel, quite definitely, however, that ocular hypertelorism is a separate entity. Classically, the subjects are considered to be fond of music; that most likely is a feature characteristic of their gay and pleasant personality. Anatomically they differ from the mongoloid, though, like the mongoloid, they are short and stocky, ranging

in height from 55 to 61 inches.

All 6 of the patients in Caswell present the following features: The eyes are set far apart; the bridge of the nose is flattened and broad. There is divergence of the orbits to a moderate degree. External squint is present in 4; nystagmus, in 4. A vertical groove extends upward from the root of the nose in 3. The head is short; the occiput is absent or reduced, and there is a bulge of the temporal regions in all.

Greig has shown through postmortem studies that the facial deformity is caused by a malformation of that portion of the sphenoid bone which arises from cartilage. According to him, the greater wings of the sphenoid are quite small, and the lesser wings rather large. In other words, they are in reverse. Frontal bone prominences are present in all 6. The palate is extremely narrow and high in 3, approaching more nearly the normal in the others. The ears are large in all, in contrast to the small ear of the mongoloid. The mouth remains open in half of our cases, and the tongue is fissured in 1. Two of them, like the mongoloid, have a large gap between the hallux or great toe and the second toe. The skin and hair in each are of fair quality, again in contrast to the mongoloid. Congenital cardiovascular anomalies are present in 2—one a ventricular septal defect and the other an auricular septal defect.

Several observers have attempted to associate this interesting and unusual condition with the pituitary gland. Studies thus far, however, have not revealed the nature and degree of the relationship to the endocrine system. Before I diagnosed and grouped the 6 patients at Caswell, medical department personnel at the institution had interestingly noticed that they fared better in a general way under daily administration of thyroid extract. While taking thyroid they apparently weigh 4 to 7 pounds less, they are more physically active, and there seems to be slight to moderate increase in

intellectual sharpness. No thoroughly scientific study has been made by our group. The only effort at metabolic evaluation has been through the determination of total blood serum cholesterol, which in each case has ranged between 160 and 200 mg. per 100 cc. or within normal limits. One must conclude that there might well be additional metabolic facts to be obtained, certainly of interest and possibly of some benefit to the individuals who make up the group.

Congenital Oxycephaly

Each of the remaining two deformities—congenital oxycephaly and gargoylism—is represented at Caswell population by one male of each type. In view of the unusual anatomic patterns, a brief description will be given of each. The first patient represents an example of the complete oxycephaly syndrome. He has the combined deformity of the skull, with resulting abnormality of the eyes, and synostosis of the fingers and toes. There is a pathologic union of the sutures of the skull, including the facial bones. Such changes have been thought by most past observers to occur during intrauterine life. The cranium descends upward, producing an abnormally high frontal region, which meets the vertex at a sharp right angle. The vertex is blunted. The skull is thin, and there is a marked bulge in the temporal regions. The cranial defects mentioned cause the ears to be asymmetrically placed. The thinning of the skull has caused a series of shallow depressions of the external table. Such concavities—called “digital impressions,” or “copper beading”—ordinarily are found, as the superciliary ridges and frontal prominences are poorly developed; the pituitary fossa is wide and deep. The orbits are very shallow. In our case the palate is markedly cleft. The nose is broad and flat, especially the bridge. The ears are exceptionally large, but appear to be normal in their lines and general contour. The eyeballs protrude markedly, because of the small orbital openings. There is divergent strabismus and nystagmus. Vision is moderately impaired by progressive optic atrophy.

Two or three years ago, for a period of several months, this child complained of severe headaches, suggestive of increased intracranial pressure. Likewise, the present optic atrophy is suggestive of increased

pressure. Both thumbs and great toes are unusually large, with very large irregularly shaped nails. The other fingers and toes are fused; however, osseous fusion is only in the terminal phalanges. There is one large nail for each group of combined digits. There is no evidence of congenital heart disease.

The boy just presented is 11 years of age, weighs 76 pounds, and is 52 inches tall. The head measures $19\frac{3}{4}$ inches at the circumference, $13\frac{1}{2}$ inches from frontal to occiput, and 12 inches from ear to ear. The I.Q. at 7 years, 11 months of age was 43; at 9 years, 10 months, 30. The boy is the third of three children, the other two being normal girls.

Congenital oxycephaly alone is considered a relatively rare condition. The complete oxycephaly syndrome with associated deformities is thought to be quite rare. This condition differs from ocular hypertelorism especially in that it demonstrates increased intracranial pressure and syndactylism.

Gargoylism

The third condition for presentation is gargoylism. (lipochondrodystrophy). The illustrative patient is 22 years of age, weighs 90 pounds; and is $61\frac{1}{4}$ inches tall. The head measures 20 inches at the circumference, $13\frac{3}{4}$ inches from frontal to occiput and 13 inches from ear to ear. The I.Q. at the age of 6 years was 15, indicating a mental age of 1 year. At 21 years of age the I.Q. is 8—indicating a mental age of 1 year.

The patient presents a most grotesque facial pattern. The head is large and quite distorted. The nose is quite flat with a markedly recessed bridge, a feature which, along with a protruding forehead, gives the eyes a most ghastly appearance. Corneal opacities are present bilaterally. The ears are placed quite low, and the right is lower than the left. They are of irregular shape. Deafness has been suspected. The mouth is large in keeping with a markedly displaced mandible anteriorly. The lips are large, and the palate is high. The neck is diminished, thereby placing the head almost squarely on the narrow shoulders. All four extremities are short. The feet are markedly deformed, with a pronounced clubbed appearance. The fingers and toes are thin and short. The left thumb possesses a very small auxiliary digit off its lateral aspect at the level of the nail, which also possesses a small nail. The chest

is funnel-shaped, and there is a low thoracic kyphosis, giving the individual a somewhat dwarf-like skeleton. The abdomen is regularly above plane; the liver and spleen are readily palpable, being firm and smooth. Sexual development is inadequate. It is said that there is usually progressive mental deterioration through the years. Death most often ensues before adolescence. There is ordinarily spleen and liver lipoid infiltration, as might be suggested by this patient's hepato-splenomegaly. Lipoid infiltration and degeneration of the central nervous system have also been reported. The blood lipoids are usually normal. Marked pathologic features of the endocrine glands are for the most part not found. Roentgen studies of the long bones often demonstrate large epiphyses. Skull films usually show synostosis of the sagittal suture. Metabolic and blood studies have not been made. This patient has been considered unusual since only 56 cases of the condition have been reported. He merits much additional study.

Discussion

Dr. Lenox D. Baker (Durham): As medical director of the North Carolina Cerebral Hospital, I am deeply interested in this paper. We see a variety of malformations, both infectious and congenital in nature, and undoubtedly some fall into the categories described by Dr. Lokey. Whether or not they

fit into one of his clear-cut syndromes, I do not know, but I am certain that we see what might be called border-line cases with such tendencies.

As an orthopedist interested in the congenitally malformed child, I would like to point out a few observations that differ completely from what the literature has led us to believe. If you look at some of the reports on the study of cerebral palsied children in this country, you will read that about 70 per cent can be rehabilitated. In my opinion, that statement is far from true. I would say that the figures should be reversed—that perhaps 30 per cent can be rehabilitated, while 70 cannot. The majority simply do not measure up intellectually.

A large proportion of our children have an intelligence quotient of from 70 to 80; others measure from 50 to 60, and a large group even lower than that.

We need your help in the fight against cerebral palsy. It is a popular program in this country. People are raising money, building centers, conducting drives. Parents have been given false hopes with regard to their children. We need more studies—particularly better psychologic tests for classifying the patients intellectually. We should all work together in rehabilitating as many of these children as possible. Others we cannot rehabilitate.

Dr. Lokey has presented some interesting cases. I would say, as an orthopedist, that if you discover one deformity of a bony nature in child, it is wise to look for others. It is the dislocated hip or the club foot that may be watched for, along with other tendencies that we may encounter from time to time.

Corneal Dystrophies*

Three Dominant Heredity Types in Piedmont North Carolina

L. BYERLY HOLT, M.D.

WINSTON-SALEM

Corneal dystrophies are usually bilateral, have a more or less typical morphology, and are not vascular. They are hereditary, and usually originate in the axial region⁽¹⁾, occur early in life, and often produce visual impairment. These characteristics are in contrast to degeneration, which occurs later in life, takes place near the periphery, varies in morphology, and may be unilateral or

bilateral and may be marked by vascularity.

Three types of corneal dystrophy with a dominant hereditary strain have been found in Piedmont North Carolina. The first, the granular form (Groenouw's Type I or crumb type) usually begins at about five years of age, when small dots and radial lines can be seen. Later, discrete white rings, arcs, garlands, disks, clubs, dots, and half-moon shapes develop in the axial center of the stroma of the cornea and extend to two-thirds the depth of the cornea. Corneal sensitivity may be normal or may be reduced.

Read before the Section on Ophthalmology and Otorhinolaryngology, Medical Society of the State of North Carolina, Pinehurst, May, 1955.

*Research Grant from the Eye Bank for Restoring Sight, Inc., Winston-Salem.

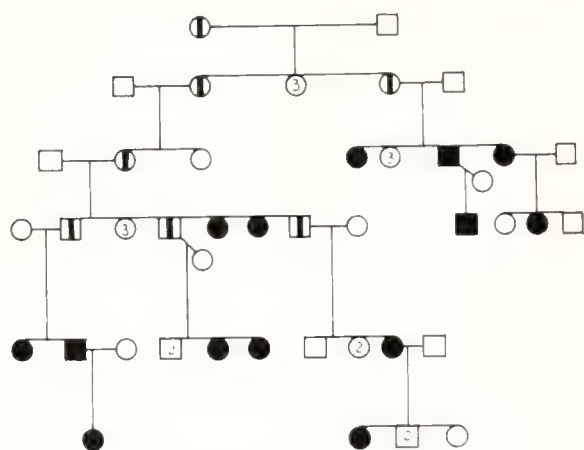


Fig. 1. Grenouw's dystrophy.

Epithelial erosions may be seen, and the cornea may be irregular in older patients. Vision gradually diminishes after about 30 years of age. There is no pain; the lesions do not extend to Descemet's membrane or the periphery. Pathologically there is destruction of the corneal lamella, with intralamella and extralamella deposits.

Figure 1 shows the incidence of Grenouw's dystrophy in the descendants of one person affected with the disease. About 21 individuals have manifested the condition, or about half the members of the family, including both sexes.

The second type of dominant corneal dystrophy found is recurrent epithelial erosion (Fig. 2). It may develop at 4 to 6 years of age, with painful attacks in the morning, following trauma to the cornea.

Type 3 is a rare hereditary form⁽²⁾. About 1753 a religious group called the Moravians, from Hornhut, Saxony, in East Germany, settled near Winston-Salem. Figure 3 shows the cases reported among the descendants of one of these settlers who had the disease. The family has not been prolific. Yet, of

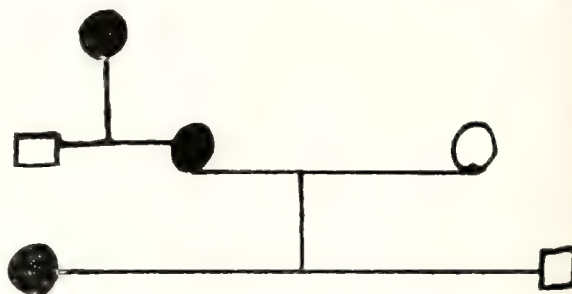


Fig. 2. Recurrent epithelial erosion.

the 43 living descendants, about 20 are affected with the condition, ranging in age from 7 months to 70 years. Cases have been reported in eight generations.

No pain has been reported with this condition. The surface epithelium is irregular, and takes a punctate fluorescein stain over the entire cornea. With diffuse illumination of the slit lamp, punctate gray opacities are seen. In regredient light the opacities appear as small to minute droplets. With focal illumination the opacities are found anterior to Bowman's membrane. Between the haze and punctate opacities are fine, serpiginous grayish lines, sometimes forming whorls. With a narrow beam, the epithelial surface is found to be irregular. The small space between Bowman's membrane and the surface is irregularly opaque and shows many round white dots.

Beneath Bowman's membrane the cornea is normal except for changes concurrent with the age of the patient. Descemet's membrane is normal, smooth, and without folds. There is no edema of the endothelial cells, and no excrescences on Descemet's membrane.

From the preceding paragraphs it is seen

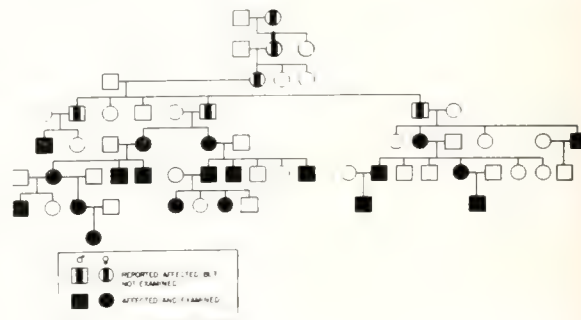


Fig. 3. Rare form of familial corneal dystrophy.

that this type does not resemble Fuch's endothelial and epithelial dystrophy⁽³⁾. The visual acuity is lowered to about 20/40 to 20/60 during the first decades of life, but impairment does not progress much until about 45 years of age.

These cases may be compared with 34 cases of dominant corneal dystrophy reported from the Holstein area of Germany by Meesman and Wilke. These authors describe grayish spots in the epithelial layer and white opacities thought to be in Bowman's membrane. The youngest patient was 3 years of age. The condition was steadily progressive and marked by episodes of irritation, especially in childhood.

Even though these German patients may be relatives of our North Carolina patients, the alteration in Bowman's membrane and the stroma, and the painful episodes found in their cases differ from our description. There is, however, great similarity between the Wilke, Pameijer, and Buerke types of the disease.

The form of epithelial dystrophy observed in North Carolina differs from all others previously described in the absence of changes in Bowman's membrane. From other dystrophies it is differentiated by the intactness of the stroma, Descemet's membrane, and the endothelium.

Summary and Conclusion

Three types of dominant corneal dystrophy found in patients in Piedmont North Carolina have been described. Conservative treatment until vision is restored and the patient is ready for a corneal transplant⁽⁴⁾ is recommended.

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Fever Due To Quinidine

Case Report and Review

JOHN D. WALLACE, JR., M.D.

WINSTON-SALEM, N. C.

A number of undesirable reactions are known to occur with the use of quinidine. One of the least common of these is fever, either alone or associated with other allergic manifestations. Fifteen cases have been reported in the literature since 1922⁽¹⁾. The following report presents an additional case and a review of the literature to date.

Case Report

A 49 year old man was admitted to the hospital because of an acute posterior myocardial infarction. His past history was negative except for angina pectoris, and quinidine had not been administered previously.

Three weeks after admission the patient began to have frequent extrasystoles with

short runs of bigemini caused by premature ventricular beats. For this reason he was started on quinidine, 0.2 Gm. given orally every four hours. The arrhythmia subsided within 24 hours, but the same dosage was continued prophylactically.

After five days of therapy in which a total of 3.8 Gm. of quinidine was administered, the patient's temperature spiked to 105.2 F. He complained of weakness and nasal congestion; however, a physical examination was normal. His pulse rate remained between 90 and 100 despite the high fever. Laboratory studies indicated a white cell count of 8,800, a sedimentation rate of 38 mm. per hour, negative febrile agglutinations and negative blood cultures. A urinalysis and throat culture were normal.

The quinidine was immediately discontinued, and the patient's fever subsided

From the Department of Internal Medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

in two days. He remained afebrile and felt well until his discharge two weeks later. Quinidine was suspected as the cause of his fever, but a test dose was not given to confirm the suspicion.

The patient was readmitted to the hospital one month later because of dyspnea and palpitation. An electrocardiogram showed a normal sinus rhythm with multifocal premature ventricular beats. Quinidine, 0.2 Gm. given every four hours, was started, and after the third dose, his temperature rose to 103.8 F. The quinidine was stopped, and within 24 hours his temperature had returned to normal. During the febrile episode, he complained of weakness, chilliness, diarrhea, and joint pain. A physical examination was remarkable only in that the knees were slightly swollen and hot.

Ten days later a test dose of 0.4 Gm. of quinidine was given and was followed by a rise in temperature to 103 degrees which dropped to normal in eight hours. Again joint pain was present. He was also given 1 mg. of quinidine dissolved in sterile water intradermally. Within a few minutes this produced a 2 cm. area of erythema and induration which persisted for 36 hours.

The patient's arrhythmia was controlled by the use of procaine amide, and he was discharged from the hospital in good condition.

Review

In 1922 Levy^(1a) reported fever occurring as an "unpleasant symptom" in 2 patients receiving quinidine, but he did not report their clinical course. Sturnick^(1b) reported a case with fever following the use of quinidine in 1942 and proved the presence of allergy to quinidine by the use of test doses with the prompt recurrence of fever. Twelve additional cases have been reported since 1950.

All the patients were adults between the ages of 23 and 76 years. Only 1 patient gave a history of allergy. Two of the patients were brothers, but they had no other family history of allergy.

The time required for sensitization varied from 3 to 19 days, but generally was at least one week. A drug allergy was recognized in 1 patient when a maculopapular rash and a temperature of 100.2 F. developed after three days of quinidine therapy. The other patients showed initial spikes of

fever from 102 to 105 F. The total dose of quinidine before fever developed varied widely from 1.8 to more than 18 Gm. When the quinidine was stopped, the temperature generally returned to normal in 24 to 48 hours, although 1 patient remained febrile for six days after stopping the drug. The presence of allergy to quinidine was proved in 13 of the cases by the prompt recurrence of fever with the administration of test doses of the drug. Five of the patients were given test doses of quinine, but none became febrile.

Seven of the patients had a skin rash associated with the fever. This was usually maculopapular and pruritic. One patient developed thrombocytopenic purpura, and another had petechiae. Other symptoms commonly noted were malaise, chilliness, nausea, vomiting, diarrhea, and tinnitus. One patient had generalized aching, but the patient reported here was the only one who had joint pain with heat and swelling. Quinidine was continued in 1 patient for eight days with the persistence of fever but without other ill effects. In all cases where the leukocyte count was mentioned, it remained normal, but 2 patients had an elevated sedimentation rate.

Skin tests were done on 3 patients, including the one reported here. A scratch and a patch test were negative in one case. An intradermal test with 0.1 Gm. of quinidine was positive in one case, but the patch test was negative. There was no report of an attempt to desensitize a patient to quinidine, although its continued use would have been of value in several of the patients.

Comment

In all these cases the clinical course was typical of acquired drug allergy. A period of continuous or intermittent administration was required to sensitize the patient before the sudden development of fever and other allergic manifestations. These subsided with the cessation of quinidine therapy, and the fever could be reproduced by the subsequent administration of small amounts of the drug. The first dose of quinidine might produce the allergic manifestations in an atopic individual who had a marked family history and a past history of allergy, but this situation has not been reported. The allergy to quinidine was highly specific, as indicated by the absence of fever or other symptoms with the ad-

ministration of quinine, the levo-isomer of quinidine.

The allergic manifestations were similar to those of serum sickness—fever, skin rash, malaise and, in 1 case, joint pain. The association of a skin rash with the fever should indicate the possibility of a drug allergy, but the occurrence of fever alone or with minimal symptoms presents a perplexing diagnostic problem. Since quinidine is usually used in patients with organic heart disease, embolic phenomena, subacute bacterial endocarditis, or a recurrence of rheumatic fever have to be considered. However, a high fever with a relatively normal pulse rate and normal white cell count, as seen in this patient, is indicative of a drug fever. It is important to recognize quinidine as the cause of fever in patients with severe heart disease, since prolonged fever may precipitate congestive failure or make pre-existing failure unresponsive to treatment.

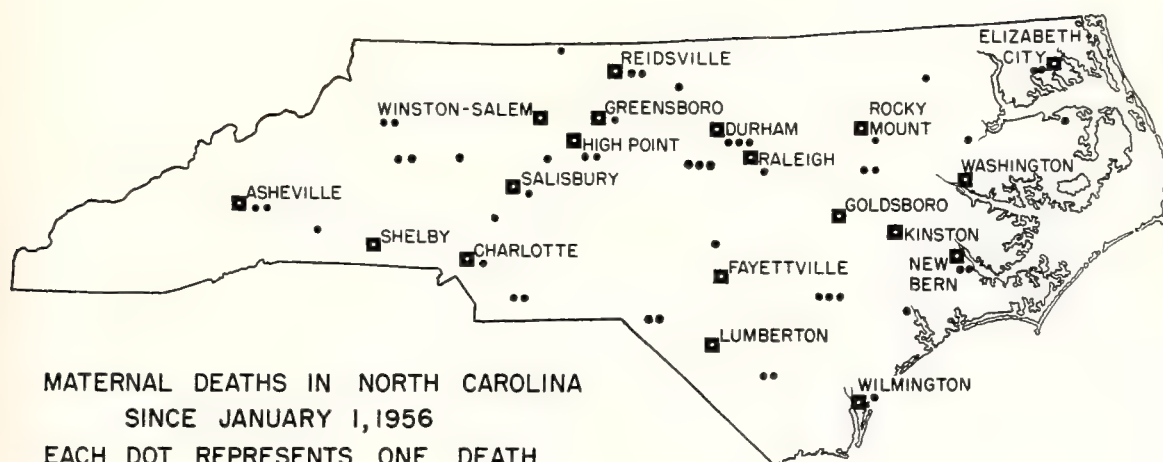
Skin tests for allergy to drugs are generally unreliable, as indicated by the few tests carried out in these patients. Intradermal and patch tests with drugs may cause a recurrence of the skin rash. The only practical means of proving the diag-

nosis is to give small doses of the drug. This was done in these patients without harmful effects.

If the administration of quinidine is extremely important, an attempt to desensitize the patient can be made. O'Malley⁽³⁾ has suggested several methods for desensitization to quinine which might be used.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

MAY, 1956

THE ANNUAL MEETING

The second meeting in the second cen-
tury of the Medical Society of the State
of North Carolina had the second highest
member attendance (1,024 — the highest
(1,208) being the Centennial Meeting in
1954. It was, however, second to none in
noteworthy features. A large number of
A.M.A. representatives were in attendance,
the many scientific exhibits and the audio-
visual and postgraduate instruction courses
were excellent, and the section meetings as
well as the general sessions presented well
balanced programs.

One of the best innovations was the in-
auguration of the President-Elect at the
Tuesday night President's Dinner instead
of the final General Session at 5 P.M. Wed-

nesday — when only a corporal's guard is
left to witness his installation.

Although the House of Delegates did not
meet until Monday, Sunday was anything
but a day of rest for the members of the
Executive Council and the members of the
Committee on Constitution and By-Laws.
Both were in session from 10 A.M. until
about 6 P.M., with only enough time out
for lunch. From 2 to 3 P.M. an audio-visual
program and from 3 to 5 a postgraduate
course in surgery were well attended.

At 8 P.M. the annual memorial service
was held for the members of the Society
and the Auxiliary who died last year. Dr.
Charles H. Pugh, chairman of the Com-
mittee on Necrology, presided, and Rev. C.
Excell Rozzell, D.D., of High Point Col-
lege, delivered the address. The music was
furnished by the Flora McDonald Glee
Club. This service, as always, was impres-
sive.

On Wednesday the House of Delegates
got an early start with a special meeting
called at 10 A.M. in order to consider a by-
law authorizing the Executive Council to
change the time of the installation of the
President-Elect.

Much of the time of the House was taken
by the report of the Committee on Con-
stitution and By-Laws, which is summarized
in another editorial. The other committee
reports had been considered by the Execu-
tive Council and sent in mimeographed
form to every delegate, thus greatly expe-
diting the work of the House. The pro-
ceedings will, of course, be published in the
Transactions number of the NORTH CARO-
LINA MEDICAL JOURNAL. Dr. W. H. Kibler
of Morganton was elected General Practi-
tioner of the Year.

There was surprisingly little controversy
in the House of Delegates. A last-ditch
stand was made by a few who are opposed
to admitting non-white members to the
scientific sessions, but the adoption of the
By-Law creating the scientific membership
was declared constitutional by Speaker of
the House Westbrook Murphy and sus-
tained by our attorney, Mr. John Ander-
son.

Among the high lights of the report was
the announcement of the purchase by the
Society of 51 acres of land on Route 70
between Raleigh and Durham, between 10

and 11 miles from Raleigh. This is to be used for the construction of a building to serve as headquarters for the Society. Another high light was the announcement that on December 31, 1955, the membership of the Society had reached an all-time high of 3,004.

On Tuesday morning the breakfast for Officers of the State and County Societies was well attended, and habitually late sleepers were repaid for rising earlier than usual by Dr. R. Wallace Teed's excellent address on "Some Christian Responsibilities of Physicians."

Since the President-Elect was to be installed in office at the Tuesday night dinner, Dr. Rousseau gave his Presidential Address at the First General Session on Tuesday morning. It is the leading article in this issue, and deserves careful reading and rereading. The First Session was marked by a constellation of other good speakers: Dr. Elmer Hess, President of the American Medical Association; Dr. Warren W. Furey, President of the American College of Radiology; Dr. David Allman, chairman of the A.M.A.'s Committee on Legislation; Dr. Denton A. Cooley of Houston, Texas, and our own Westbrook Murphy.

The Committee on Awards announced that Dr. A. Hughes Bryan of Chapel Hill had won the Moore County Award for his paper "Obesity and Public Health"; Dr. Dirk Verhoeff and William M. Peck of McCain, the Cooper Memorial Award for their paper, "Trends in the Management of Tuberculosis in Children"; and Dr. Cabell Young of Winston-Salem, the Wake County Audio-visual Award for his presentation, "Congenital Hip Disease."

The President's Dinner on Tuesday night was the social high light of the meeting. Dr. Fred Garvey was toastmaster and, despite his declaration that he was not suited to the job and undertook it only because he could not refuse his good friend Dr. Rousseau, he made an excellent master of ceremonies. The most impressive part of this occasion came when Dr. Rousseau administered the oath of office to Dr. Donald Koonce. Dr. Koonce's brief inaugural address will be somewhat expanded and published in the June issue of this JOURNAL.

Following the dinner a thrilling exhibition of ice-skating and an intriguing ex-

hibition of rapid drawing by the creator of Bugs Bunny was an interlude before the ball room floor was cleared for dancing until the wee sma' hours.

The Second General Session on Wednesday morning was honored by a number of guest speakers: Dr. George Lull, from the A.M.A.; Dr. Ralph O. Rychener, chairman of the A.M.A. Section on Ophthalmology; Dr. Robert Kehoe, from the University of Cincinnati; Dr. Wesley Bourne, of McGill University in Montreal; and Dr. W. Edmond Chamberlain, of Temple University, Philadelphia.

In the usual conjoint session of the State Society and the Board of Health, Dr. Grady Dixon, president of the State Board of Health, introduced Dr. Lenox Baker, who succeeded Dr. Hubert Haywood when the latter resigned. Dr. Dixon also presented on behalf of the Board citations to Dr. Haywood for his long and faithful service as vice president of the Board of Health, and to Dr. Ernest Branch for his work as director of the Division of Oral Hygiene since 1929. Dr. J.W.R. Norton then gave his brief but comprehensive annual report.

After the conjoint session, the new Board of Medical Examiners was elected. A precedent was broken when two members of the outgoing board—Drs. Combs and Doffermyre—were nominated and elected to the incoming board. The other five members elected were: Dr. John B. Anderson, Asheville; Dr. Thomas Baker, Charlotte; Dr. Ed Rasberry, Wilson; Dr. Thomas G. Thurston, Salisbury; and Dr. Carl V. Tyner, Leaksville.

At the final meeting of the House of Delegates on Wednesday afternoon, the Nominating Committee's report was adopted unanimously. The president-elect is Dr. Edward W. Schoenheit of Asheville. Other officers are as follows: Dr. John Rhodes, Raleigh, first vice president; Dr. O. Norris Smith, Greensboro, second vice president; Dr. G. Westbrook Murphy of Asheville, speaker of the House; Dr. Lenox Baker, Durham, vice speaker of the House; Dr. William Bell, New Bern, vice councilor for the Second District, to succeed Dr. Simmons Patterson of New Bern who resigned.

Dr. Schoenheit, by his long and faithful service as a member of the Society, has

earned the honor given him, and both he and President Koonce may be expected to lead the Society in its steady upward progress.

* * *

CHANGES IN THE CONSTITUTION AND BY-LAWS

One of the hardest working committees of our State Society was the one on Constitution and By-Laws—especially its chairman, Dr. Roscoe McMillan. This committee was in almost continuous session from 10 o'clock Sunday morning until the Wednesday afternoon session of the House of Delegates. Many sections of the Constitution and of the By-Laws were revised and some new ones added.

Since all changes had to be accepted by the House of Delegates, the committee's report took much of the time of each session of the House. The proposed changes were adopted with surprisingly little objection. The revised edition of the Constitution and By-Laws will be published later for the members of the Society, but the most important changes will be noted here.

One proposed change in the Constitution provides that, beginning in 1962, the terms of the Board of Medical Examiners shall be staggered, so that two or three new members shall be elected every two years.

The term "members" is substituted for "fellows" of the Society throughout the Constitution and By-Laws.

Those who have paid dues to the Society for 30 consecutive years shall be designated "life members" instead of "honorary members," and the term "honorary member" reserved for a selected few who have reflected credit upon the profession. These "must be nominated by the Council and receive a two-thirds vote of the members of the House of Delegates present at the meeting at which their names are presented for election."

A scientific membership is established for "those physicians other than white who are admitted with the privilege of participating in the scientific and business session of the Society and of voting and holding office. They shall pay annual dues and assessments fixed by the Executive Council, not to exceed the annual dues for Active Members."

An important addition provides that a general referendum may be ordered by a two-thirds vote of the House of Delegates or of the General Session of the Society—the question to be submitted by mail to all members of the Society.

These changes in the Constitution were all approved by the House of Delegates, but will have to wait for final ratification until the 1957 session.

Since an amendment to the By-Laws may be adopted when one day has elapsed after its presentation, a number of changes were adopted and are now effective. One of the most important provides that the Nominating Committee shall make its report to the first session of the House of Delegates, instead of the final one. This insures consideration of the report by a full House, and should eliminate much of the "politicking" that usually goes on during the whole meeting of the Society.

A new section defined in some detail the status of the Executive Secretary. A section on the Executive Council provided that the chairmen of the Committees on Legislation and on the Constitution and By-Laws, the State Health Officer, and the editor of the NORTH CAROLINA MEDICAL JOURNAL shall be ex-officio, non-voting members of the council.

Another paragraph was added to the Section on the Grievance Committee, stating that no member of that committee or any member of the Executive Council or any representative of the Society shall be held responsible for any statement made in his official duty in connection with any action of the Grievance Committee.

Finally, two changes were made in the Chapter on the Scientific Section of the Society. The words "and Surgery" were omitted from the "Section on General Practice of Medicine and Surgery," and the "Section on Practice of Medicine" was changed to the "Section on Internal Medicine."

At the final session of the House of Delegates Dr. W. M. Coppridge offered an amendment to Chapter V, Section 2 of the By-Laws, to provide that no member of the Nominating Committee should serve more than two years in succession, that a new chairman should be elected every year, and that the committee should submit a confi-

dential report to the President two weeks before the Annual Meeting of the Society. This amendment, however, could not be acted upon before the next meeting of the Society.

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EDITORIAL NOTES

Numerous tributes, both public and private, were paid Dr. J. P. Rousseau for his untiring and conscientious devotion to the duties of his office. In presenting him to the House of Delegates for his report, Speaker Westbrook Murphy said that he was the best president the Society has had within his memory. Another speaker called him a medical statesman, and said that no man ever gave himself more freely to the cause of medicine. Still another said that he would go down in history as one of our greatest presidents. Similar expressions were heard repeatedly during the meeting. Dr. Rousseau, with characteristic modesty, gave credit for the achievements of the past year to the officers, the Executive Council, and members of the Society.

* * *

One of the high lights of the whole meeting was Dr. Westbrook Murphy's address, "A Small Leak Will Sink a Great Ship," given by special invitation before the First General Session. Dr. George Lull asked that 250 reprints be sent him for use by the A.M.A. Dr. Elmer Hess began his off-the-cuff remarks by praising it, and saying that he was going to give us some Murphyism. Dr. David Allman said that his address, "Medicine in a Changing World," was the concluding chapter in Dr. Murphy's book.

* * *

The recommendation to stagger the term of the Board of Medical Examiners met with general approval. Since the Constitution could not be changed in time to make it apply to the new board, two members of the old board offered themselves as Dr. Murphy expressed it, "as sacrificial lambs"—with the understanding that they would resign in two years, when the other members of the incoming board would have profited by their experience. The willing-

ness of these men to make a real sacrifice, and of the Society members to obey the spirit rather than the letter of the law, speaks well for the forward-looking spirit of the Society.

* * *

An innovation this year was the presentation of a green ribbon to every past president at the meeting before the President's Dinner. This was to be worn diagonally across the shirt front, and added color to the occasion.

The Nominating Committee recommended that next year's meeting be held in Pinehurst, "if expedient"; if not, in Asheville. Now that the county societies are free to admit Negro physicians to the newly created scientific membership, it is almost certain that some will be taken into membership and will want to attend next year's meeting. Since the management of the Carolina Hotel has shown no signs of allowing non-white physicians to come into the hotel, it is probable that the 1957 meeting will be held in Asheville. Except for the location, Asheville would be an excellent choice, since it has adequate hotel facilities and a suitable auditorium.

* * *

Miss Shirley Wiles, the very attractive young lady who won the high school essay contest on the private practice of medicine, read her winning essay at the end of the First General Session on Tuesday morning. It is unfortunate that the program had run so far over time that only a small number was left to hear the essay. It is expected that this will be published in a future issue of the NORTH CAROLINA MEDICAL JOURNAL.

* * *

Dr. Donald Koonce, after his installation as president, said that he admitted to a feeling of peculiar gratification on attaining the office. His wife's father, Dr. Edward Jenner Wood, and her grandfather, Dr. Thomas Fanning Wood, had each been president of the State Medical Society, and she rather frequently reminded him of the fact. Now if she brought up the subject, he could look at her with some complacency and say, "So what?"

Committees and Organizations

PUBLIC RELATIONS COMMITTEE NICE THINGS DO HAPPEN*

While en route home from an A.M.A. Public Relations Conference in Chicago your Executive Secretary recently stopped in Hendersonville, North Carolina and experienced one of those ever happening, never written about events that go on in the medical world day after day.

After an afternoon of golf in the cool mountain air and a pleasant evening with friends our subject awoke about 1:00 a.m. suffering a mild attack of asthma which grew steadily worse. Finally the services of the local hospital were sought. The nurse on duty phoned one of Hendersonville's visitor-conscious physicians, breaking into his sleep about 1:30 a.m. and asked for permission to administer as indicated.

After a brief conversation involving the usual questions and answers the doctor ordered medication for immediate relief and told the nurse to have our subject "come by the office the next day for a prescription." (Here the story began to sound like some related to the DCMA Board of Censors by a few of our visitors.)

The next day when the "victim" called at the doctor's office he identified himself only by name and stated his mission and plight. The nurse obtained the proper prescription and handed it across the counter with a very pleasant comment about how such things could spoil a trip. Her smile and general attitude were all that could be desired in a doctor's office.

When the charge for services rendered was asked for, accompanied by the statement, "I want to pay cash as I am only a visitor," the answer received was, "Oh, there will be no charge, the doctor hopes you enjoy your visit to Hendersonville." (Here the story sounds **nothing** like complaints to DCMA. Very seldom does anyone write us about the pleasant things that happen in a member's office.) Well, even though we opened by saying this was one of those ever happening events, we meant by category only. Here is a community-conscious physician who spent about three minutes total with a visitor's problem and did more to cement good relations for Hendersonville than the Chamber of Commerce can do in a year. He also did a swell job for medicine, for our executive secretary hears so many stories which end in the opposite manner that this sort of event rejuvenated his already enthused interest in our behalf.

As he left the office Mr. Lee thanked the doctor, through his secretary, and then—and only

then—identified himself with medicine by presenting his calling card. He also offered his services to the doctors in the office if and when they come to Miami but stipulated that Orange Bowl tickets were not included.

We would probably be amazed at how many of our members are equally as considerate each day yet we seldom hear of these deeds.

CORRESPONDENCE

To the Editor:

Dear Dr. Johnson:

Dr. Davies McLelland of Mooresville died recently, and although you will probably be getting a notice from our society, I want to add something personal to this accolade.

I was associated with him rather closely for 35 years, living in the same county and following the same branch of our profession. Besides being attracted to him because of his personality, we often found ourselves side by side in the same endeavor. I never knew a man with less conceit and deceit in his heart than Davies. In his intense desire to see that the other fellow always had any shadow of a doubt in his favor in any problem, he often did himself harm. It gives me great pleasure to say something regarding this man. He was truly a gentleman and a scholar and a credit to our profession.

Sincerely yours,
T. V. Goode, M.D.
Statesville

* * *

To the Editor:

I am attaching herewith for your information a carbon copy of a letter addressed today to Dr. James P. Rousseau, president of the North Carolina Medical Society.

The National Foundation is indeed grateful to the physicians of North Carolina for their cooperation in the conduct of the 1955 vaccine demonstration program.

With Dr. Rousseau's consent, you may feel free to publish this letter in your journal.

With continuing thanks for the efforts of your publication to keep the physicians of your state informed on the subject of poliomyelitis,

Hart E. Van Riper, M.D.
Medical Director
National Foundation for
Infantile Paralysis

* * *

Dear Doctor Rousseau:

May I take this opportunity, on the occasion of the annual meeting of the Medical Society of the State of North Carolina to express thanks from the National Foundation for Infantile Paralysis to the society as a whole and to its individual members for their excellent cooperation with the

*Reprinted from the Bulletin of Dade County Medical Association, Miami, Florida, December, 1955.

State Health Department and the National Foundation in the successful conduct of the poliomyelitis vaccine demonstration program in North Carolina during 1955.

The chief beneficiaries of this program, of course, were the North Carolina school children, mainly in the first and second grades, who received one or more injections of vaccine supplied by the National Foundation during the year 1955. A total of 391,476 cc. of vaccine was supplied.

You may be interested to know that, thanks to your help, 223,136 North Carolina children received at least one inoculation; 136,871 received two inoculations; and 2,254 received a third (booster) inoculation with this vaccine up to October 10, 1955.

Approximately 49 per cent of the North Carolina children in the 5-9 age group, the age group most susceptible to paralytic poliomyelitis, thus obtained a high degree of protection against the disease in 1955 as a result of this program.

The cooperation of the Medical Society of the State of North Carolina helped materially to account for this fine record.

While this is a formal expression of gratitude for your help, the real expression must come from the parents of those many children in North Carolina who feel free from the threat of paralytic poliomyelitis in their families now that the 1956 poliomyelitis season is at hand.

Very cordially yours,
Hart E. Van Riper, M.D.
Medical Director
The National Foundation for
Infantile Paralysis

Rehabilitation Pays Off

New techniques and developments in rehabilitating the physically handicapped promise a dramatic solution to the now growing problem of economic and human loss resulting from the prolonged disability of injured workers, Mr. Scott Allan, supervisor of Medical Service for the Liberty Mutual Insurance Company, said recently in a speech presented before the University of Tennessee College of Law Medico-Legal Institute.

Citing the recent experiences of his own company's rehabilitation centers in Chicago and Boston, Mr. Allan said that of 3,616 serious cases, many paraplegic, 85 per cent were substantially improved and of these 82.1 per cent actually returned to work. In addition, a recent study of 66 cases, Mr. Allan said, shows a net savings in medical and indemnity costs resulting from their rehabilitation of over \$2,452,000.

Mr. Allan had high praise for the Veterans Administration's rehabilitation program but said that civilian services have lagged far behind, with many doctors and hospitals unaware of just what can be accomplished in this field.

BULLETIN BOARD

COMING MEETINGS

Annual Hospital Food Service Institute—North Carolina State College, Raleigh, June 13-15.

Duke University Postgraduate Course in Medicine—Duke Hospital, Durham, June 18-21.

Third National Cancer Conference, sponsored by the American Cancer Society and the National Cancer Institute of the Public Health Service—Detroit, June 4-6.

American College of Chest Physicians, Twenty-Second Annual Meeting—Hotel Sherman, Chicago, June 6-10.

American Medical Association, One Hundred Fifth Annual Meeting—Chicago, June 6-10.

Postgraduate Course in Otorhinology—Mount Sinai Hospital, New York City, July 14-28.

American Congress of Physical Medicine and Rehabilitation, Thirty-Fourth Annual Scientific and Clinical Session—The Ambassador, Atlantic City, New Jersey, September 10-14.

Postgraduate Medical School of New York University—Bellevue Medical Center, Eight-Week Course in Occupational Medicine—New York City, September 10-November 2.

DUKE UNIVERSITY POSTGRADUATE COURSE

The Duke University School of Medicine will hold its annual June postgraduate course at Duke Hospital June 18, 19, 20, and 21. The emphasis this year will be on diagnostic criteria rather than on any particular disease.

All meetings will originate in Room 2031, Duke Hospital, and rooms will be available in the University graduate dormitories. Meals may be obtained in the Graduate Dormitory or in the Oak Room in the University Union.

All participants of the course will be guests of the faculty of the Medical School at an informal dinner on the evening of June 20.

Ward rounds or a visit to the clinics are available on each afternoon. More interesting rounds can be prepared if the participants will indicate their preference in advance.

Twenty-eight hours of formal instruction is offered during the four-day period, and certificates of attendance will be provided.

Address inquiries to the Director of Postgraduate Education, Box 3088, Duke Hospital, Durham. The registration fee is \$25.

The program follows:

Monday, June 18

8:30 A.M. Registration, Room No. 2031

9:00 A.M. Practical Suggestions for Neurologic Diagnosis, Dr. C. Charles Kunkle, Professor of Neurology

- 10:00 A.M. The Recognition and Management of Emotional Problems, Dr. Leslie B. Hohman, Professor of Psychiatry
- 11:00 A.M. Practical Suggestions for Ophthalmologic Diagnosis, Dr. W. Banks Anderson, Professor of Ophthalmology
- 12:00 Noon Lunch
- 2:00 P.M. Ward Rounds or Visit to the Clinics
- 7:30 P.M. Round Table Discussion: Subject: The Diagnosis and Treatment of Arthritis—Dr. Elbert L. Persons, Associate Professor of Medicine, Leader; Drs. George W. Baylin, Professor of Radiology, and J. Leonard Goldner, Professor of Orthopedic Surgery

Tuesday, June 19

- 9:00 A.M. Suggestions for Diagnosis of Liver Disease, Dr. Malcolm Tyor, Associate in Medicine
- 10:00 A.M. Suggestions for Gynecologic Diagnosis, Dr. Bayard Carter and Roy Parker, Professor and Assistant Professor of Obstetrics and Gynecology
- 11:00 A.M. Recognition and Treatment of Common Poisons, Dr. Jay M. Arena, Associate Professor of Pediatrics
- 12:00 Noon Lunch
- 2:30 P.M. Ward Rounds or Visit to the Clinics
- 7:30 P.M. Round Table Discussion. Subject: Laboratory Procedures in Endocrine Disturbances—Dr. William M. Nicholson, Professor of Medicine, Leader; Drs. Frank L. Engel and Harry T. McPherson, Associate Professor and Associate in Medicine

Wednesday, June 20

- 9:00 A.M. Suggestions for the Examination of the Rectum and Sigmoid, Dr. Clarence E. Gardner, Professor of Surgery
- 10:00 A.M. Practical Suggestions for Urologic Diagnosis, Dr. Alexander W. Boone, Assistant Professor of Urology
- 11:00 A.M. An Evaluation of the Present Therapy in Pulmonary Tuberculosis, Dr. David T. Smith, Associate Professor of Medicine and James B. Duke, Professor of Bacteriology
- 12:00 Noon Lunch
- 2:00 P.M. Ward Rounds or Visit to the Clinic
- 6:30 P.M. Turnage's Barbecue. Guest of the Medical School

Thursday, June 21

- 9:00 A.M. A Discussion of the New and Potentially Dangerous Drugs, Dr. James P. Hendrix, Associate Professor of Medicine
- 10:00 A.M. The Significance and the Practical Management of Hypertension, Dr. Edward S. Orgain, Professor of Medicine

- 11:00 A.M. The Role of Diet in Arteriosclerosis, Dr. Henry D. McIntosh, Associate in Medicine
- 12:00 Noon Lunch
- 2:00 P.M. Ward Rounds or Visit to the Clinics

NEWS NOTES FROM THE

DUKE UNIVERSITY SCHOOL OF MEDICINE

Duke University Medical School has recently been awarded a \$21,982 Lederle Medical Faculty Award for Dr. John R. Overman, virus expert.

Dr. Overman, currently a physician at the Rockefeller Institute for Medical Research, New York City, will join the Duke faculty on July 1 as associate professor of bacteriology. The three-year grant will take effect at that time.

He is one of 16 outstanding medical school teachers and researchers to receive 1956 American Cyanamid Company's Lederle Medical Faculty Awards. The basic purpose of the grants is to help assure schools and universities adequate funds to maintain promising medical men in teaching and research posts.

Before joining the Rockefeller Institute in 1954, Dr. Overman served two years as a member of the Laboratory of Infectious Diseases, National Institutes of Health, Bethesda, Maryland.

The Duke Hospital Poison Control Center has been selected to use the new barbiturate antagonists [Megamide (B-ethyl-B-methylglutarimide) and Daptazole (2:4-diamino-5-phenylthiozole hydrochloride)] for acute or chronic barbiturate poisoning. These drugs have also been found to be very effective in the treatment and/or prevention of morphine intoxication. Please write the Poison Control Center for information. Complete records must be kept as required by the Food and Drug Administration.

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Seemingly miraculous recoveries from athletic injuries just aren't so, Dr. Lenox D. Baker, Duke orthopedic surgeon, declared at the recent meeting of the North Carolina State Medical Society in Pinehurst. Apparent miracles in relatively minor injuries are due to early adequate treatment, he said.

Dr. Baker has served as trainer and physician for athletic teams for 30 years.

* * *

A whole new field of anesthesia was opened up with a report on a new drug, viadril, made by a team of Duke University anesthesiologists to the Southern Society of Anesthesiologists meeting in Augusta, Georgia, recently.

The new drug leaves most patients with virtually no recollection of having been asleep, Dr. C. Ronald Stephen, chief of Duke's anesthesiology division, declared.

Viadril is primarily a hypnotic drug which pro-

duces insensibility to pain by the depth of hypnosis it produces. In doing so, it also produces more muscle relaxation than most anesthetic drugs, and causes less postoperative illness such as nausea and vomiting, he said.

* * *

A simple new radioisotope test for intestinal disorders, which also aids in diagnosis of cancer of the pancreas, has been reported by a Duke University research team consisting of Dr. George J. Baylin, radiologist; Aaron P. Sanders, director of the Duke radioisotope laboratory; Dr. William W. Shingleton, surgeon; and Dr. Julian M. Ruffin, internist.

Dr. Shingleton told the American Surgical Society, at White Sulphur Springs, West Virginia in April, that the test may point the way to further diagnostic tools and even new treatments for intestinal disorders, particularly for patients who remain underweight following operations for stomach ulcers.

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Dean W. C. Davison of the Duke University Medical School is one of three American physicians who served as honorary consultants for an inspection tour of Navy medical research in Cairo, Egypt, April 2-10.

In addition to the inspection tour, the three doctors addressed the Sixth Middle East Medical Assembly at Beirut, Lebanon, involving some 600 physicians from throughout the Arab League countries.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

The members of the faculty and student body conducted a very successful program for Medical Education Week, April 22-28, highlighted by a tour of the facilities of the School of Medicine.

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Dr. Jacques Gray of Park Davis and Company will speak to the students of medicine, members of the intern and resident staff, and members of the faculty on May 9 on "Medical Writing."

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Dr. Paul D. White of Boston will deliver the commencement address to the fourteenth graduating class of The Bowman Gray School of Medicine of Wake Forest College on June 10, 1956. The exercises will be the first formal program scheduled for Wait Chapel on the new Wake Forest College campus in Winston-Salem.

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Dr. Robert R. J. Strobos, assistant professor of neurology, attended the Symposium on Brain Stimulation which was held at the University of Houston on April 26-28.

Dr. Howard H. Bradshaw, professor and director of the Department of Surgery, represented the committee on trauma of the American College of Surgeons at President Eisenhower's Committee on Traffic Safety held at Miami Beach on May 14-15.

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At the annual meeting of the Medical Society of the State of North Carolina April 29-May 2, Dr. Cabell Young, Jr., assistant professor of orthopedic surgery, was presented the Gaston County Medical Society Award for his audio-visual presentation.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Change in the organizational structure of the Division of Health Affairs at the University was announced on Monday, April 23, by Chancellor Robert B. House, with approval of the Health Affairs Committee of the Board of Trustees. Chairman of the committee is Victor S. Bryant of Durham.

Memorial Hospital is to be placed under the administrative jurisdiction of the dean of the School of Medicine.

Other actions which do not affect the fundamental administrative structure of the Health Affairs Division include employment of a fiscal agent to be responsible to the business manager of the University, and authorization of a code to guide the structure, function, and policies of the division. The action taken is subject to approval of the Board of Trustees.

No changes were made in the personnel heading the six-fold Health Center, which includes the School of Medicine, School of Pharmacy, School of Public Health, School of Dentistry, and School of Nursing.

The director of the hospital will be a department head in the School of Medicine. The change is scheduled to become effective between July 1, 1956, and July 1, 1957.

Director of the Division of Health Affairs is Dr. Henry T. Clark, Jr. Dr. W. Reece Berryhill is dean of the School of Medicine and Dr. Robert R. Cadmus is director of the hospital.

Chiefs of the other schools are Dr. E. A. Brecht, dean of the School of Pharmacy; Dr. E. G. McGavran, dean of the School of Public Health; Dr. John C. Brauer, dean of the School of Dentistry, and Miss Elizabeth L. Kemble, dean of the School of Nursing.

* * *

Dr. Paul F. Whitaker of Kinston was named president of the Medical Foundation of North Carolina at the annual meeting of the foundation, replacing Major L. P. McLendon who resigned because of his appointment to the State Board of Higher Education. A resolution honoring

Major McLendon which was prepared by a committee with W. Frank Taylor of Goldsboro as chairman was read by Dr. George L. Carrington of Burlington.

Dr. Whitaker, who presently is clinical associate professor of medicine at the University of North Carolina School of Medicine holds an M.D. degree from the Medical College of Virginia and an LL.D. from the University of North Carolina. Dr. Whitaker served as a member of the faculty of the Medical College of Virginia in 1923-1924 and Wake Forest College School of Medicine from 1938 to 1941, and served as visiting professor of medicine, Bowman Gray School of Medicine in 1946. He is a former president of the Seaboard Medical Association and the Medical Society of the State of North Carolina and a former vice president of the American College of Physicians.

Other officers elected were: vice presidents, J. C. Cowan, Jr., Greensboro, Henry Foscue, High Point, George Watts Hill, Durham, Howard Holderness, Greensboro, Adam T. Thorp, M.D., Rocky Mount; secretary, Shahane R. Taylor, M.D., Greensboro; treasurer, William M. Coppridge, M.D., Durham; assistant treasurer, C. E. Teague, Chapel Hill; director, Charles M. Shaffer, Chapel Hill; assistant director, Emory S. Hunt, Chapel Hill.

Named to the executive committee were the following: Bascom Baynes, Durham; Paul B. Bissette, Sr., Wilson; Harry L. Brockman, M.D., High Point; George L. Carrington, M.D., Burlington; William M. Coppridge, M.D., Durham; J. C. Cowan, Jr., Greensboro; Henry Foscue, High Point; George Watts Hill, Durham; Howard Holderness, Greensboro; J. Ed Millis, High Point; Roy B. McKnight, M.D., Charlotte; L. P. McLendon, Greensboro; Ralph C. Price, Greensboro; Shahane R. Taylor, M.D., Greensboro; W. Frank Taylor, Goldsboro; Adam T. Thorp, M.D., Rocky Mount; and Paul F. Whitaker, M.D., Kinston.

A book entitled "The Practice of Psychiatry In General Hospitals," co-authored by Dr. Eugene A. Hargrove, assistant professor of psychiatry of the University of North Carolina School of Medicine, has just been released by the University of California Press. Other authors are Dr. A. E. Bennett, associate clinical professor of psychiatry, University of California Medical School, and Bernice Engel, research associate, California Department of Mental Hygiene.

The volume answers many of the questions which must be considered in setting up psychiatric units in general hospitals, and will be of fundamental importance to anyone concerned with progressive hospital practice.

Dr. Hargrove was formerly clinical instructor in psychiatry, University of California School of Medicine.

Distinguished service awards were made recently to five prominent members of the Tar Heel medical profession at the final session of the University of North Carolina Medical School Alumni meeting. None of the ones honored are alumni of University of North Carolina.

The doctors honored in citations read by Chancellor Robert B. House are:

Dr. J. Street Brewer of Roseboro, a graduate of Jefferson Medical College in Philadelphia, and before that of Wake Forest Medical School, and a member of the North Carolina Medical Care Commission since 1947.

Dr. James B. Bullitt, retired professor of pathology at the University of North Carolina, who taught at Chapel Hill from 1913 to 1947.

Dr. G. Grady Dixon of Ayden who was graduated from the Medical College of Virginia in 1915, former president of the State Board of Health.

Dr. John Stuart Gaul of Charlotte, chief of Orthopedic Service at Presbyterian Hospital, graduate in 1913 of the Medical Chirurgical College in Philadelphia. Dr. Gaul is a pioneer in establishing clinics for crippled children.

Dr. Hamilton McKay of Charlotte, is a graduate of Jefferson Medical College in Philadelphia, a pioneer urologist of Charlotte, and a leader in the state's Good Health Program.

* * *

Dr. Daniel A. Martin, fellow in the Department of Medicine, was recently granted a United Medical Research Foundation grant in the amount of \$285 for continuation of a study concerning venous pressure changes in congestive failure.

* * *

Dr. James C. Andrews, professor and head of the Department of Biochemistry and Nutrition has received from the National Institutes of Health notice of the renewal, for an additional year, of his research grant for a study of metabolic abnormalities resulting in calcium oxalate calculi. The total amount of this grant for the ensuing year is \$6,325. Dr. Claude L. Yarbrow, instructor in biochemistry, has been a research associate and an active contributor to this program.

* * *

The United States Public Health Service has renewed its annual grant of \$10,390 to Dr. John Borden Graham, associate professor, Department of Pathology, for the fourth year of his research project on hemorrhagic diseases.

Dr. Graham is giving particular attention to the hemophiliac who becomes resistant to transfusion by developing antibodies against treatment. He is seeking to determine the specific role of inhibitors in hemophilia. This may lead to valuable discoveries for the treatment of those patients who tend to bleed excessively in injury, surgery, pregnancy, or under other conditions.

The Army Medical Service has renewed its research grant to Dr. George D. Penick, assistant professor, Department of Pathology, for his investigations on "Systemic Responses of the Blood Clotting Mechanism to Tissue Necrosis."

This is the second year of Dr. Penick's studies in what may happen to the ability of the blood to clot when tissue dies from injury or infection. It is hoped that such study may produce medical knowledge of significant clinical application in the treatment of many types of wounds, infections, and other conditions. Amount of the grant is \$9,106.

* * *

The annual initiation of new members into Alpha Omega Alpha, college medical honor society, was held recently at the University of North Carolina, with six senior medical students and three juniors taken into membership.

Initiated were Richard A. Boyd, Statesville; Lee A. Clark, Jr., Everetts; Laurence E. Earley, Ahoskie; Alexander F. Goley, Graham; John L. Hazelhurst, Henderson; William W. McLendon, Greensboro; Harold J. Bradley, Jr., Greensboro; Stephen T. Gupton, Jr., Rocky Mount; and Robert T. Whitlock, Mount Airy.

AOA President William R. Harris of Henderson presided at the banquet and initiation ceremonies held at the Carolina Inn. Other officers are Wade M. Brannan, Jr., Dunn, vice president; Adam T. Thorp, Jr., Rocky Mount, treasurer; and Dr. A. T. Miller, Jr. of the University of North Carolina Physiology Department, secretary.

The annual AOA lecture was held following the dinner, with Dr. John C. Snyder, Harvard Public Health School dean, as guest speaker.

* * *

Dr. Issac Taylor, University of North Carolina professor of medicine who is with the Byrd Antarctic Expedition, has set up his dispensary near the South Pole and is caring for the medical needs of some 60 explorers.

Dr. Taylor is the medical "freeze" expert on "Operation Deepfreeze." He has made a study of frostbites and a much larger study of the effects of high and low temperatures on human tissue.

NORTH CAROLINA HEART ASSOCIATION

Major strides toward control of high blood pressure have been made in recent years, notably in the field of drugs, as a result of heart research, the North Carolina Heart Association has reported. One of the projects in this state supported by the American Heart Association, with which the North Carolina Heart Association is affiliated, is being conducted at the Bowman Gray School of Medicine of Wake Forest College in Winston-Salem. There, Dr. Harold D. Green and his associates are studying the causes and control of high blood pressure.

NORTH CAROLINA STATE BOARD OF PUBLIC WELFARE

Psychological services are being provided to citizens throughout North Carolina by the State Board of Public Welfare in cooperation with the county departments of public welfare. During the past fiscal year 2,718 psychological interviews were given by the state staff of psychologists in the division of psychological services. Referrals were from 98 of the state's 100 counties.

Many different kinds of cases are seen at the psychological clinics set up in the counties as needed. Infants are examined as early as three months of age to help determine their suitability for adoption. Children who are believed to be mentally deficient are referred to a psychologist. Other cases involve children with serious reading or speech difficulties. Some children are emotionally disturbed, and the most serious of these are referred by the psychologist to a psychiatric clinic. Appropriate cases are reviewed by the psychologists with the part-time psychiatrist employed by the State Board of Public Welfare. Some psychological examinations are made as a part of the fulfillment of requirements for admission to a child-caring institution, foster boarding home, training school, or institution for defectives.

Adult cases most frequently handled are those judged by the county department of public welfare as likely to be eligible for consideration for aid to the permanently and totally disabled due to mental condition or by the Eugenics Board for sterilization. Each patient is interviewed individually and suitable tests are given.

The majority of the referrals for psychological examinations originate in the county departments of public welfare, but large numbers of the cases are also referred by schools, parents, relatives, juvenile courts, physicians, and others.

Persons desiring this service and persons and agencies wishing to make referrals for psychological examinations should contact their county department of public welfare which schedules the visits of the psychologist to give examinations in the county welfare department as needed.

NORTH CAROLINA SURGICAL ASSOCIATION

The North Carolina Surgical Association held its spring meeting at The Hollywood Hotel, Southern Pines, on April 19, 20, and 21.

The program consisted of papers by Dr. Lawrence Owsley on "Surgical Physiology of the Stomach and Duodenum"; by Dr. Howard Starling on "Surgical Physiology of the Liver and Biliary Tract"; by Dr. James Davis on "Surgical Physiology of the Pancreas"; by Dr. Walton Kitchin on "Surgical Physiology of the Small and Large Bowel"; by Dr. William Shingleton on "Recent Developments in Gastrointestinal Surgery"; by Dr. Beverly Hairfield on "Postoperative Care

following Gastric Surgery"; by Dr. Theodore S. Raiford on "Postoperative Care following Biliary Surgery"; by Dr. Isaac Harris on "Postoperative Care following Colonic Surgery"; and brief discussions by Dr. William Hollister, Dr. Max Schiebel, and Dr. William Noel on "Little Things Learned in Practice."

EDGECOMB-NASH MEDICAL SOCIETY

The Edgecombe-Nash Medical Society met in Rocky Mount Wednesday night, April 11. Dr. R. D. Kornegay was in charge of the program.

NEWS NOTES

Dr. Edgar D. Grady, diplomate of the American Board of Surgery, has announced the opening of his offices for the practice of general surgery, peripheral vascular surgery, and surgery of the mouth and neck, at South Stratford Road and First Street, in Winston-Salem.

In recognition of its tenth anniversary in North Carolina, the Western Electric Company held open house at the Lexington Road plant in Winston-Salem April 23 through April 27. A large influx of visitors took advantage of the invitation to inspect the company's plant and view demonstrations of some of the work underway.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Ford Foundation Announces Matching Grant Program

Physicians who have diligently worked for the American Medical Education Foundation will be interested in the April 15 announcement by H. Rowan Gaither, Jr., president of the Ford Foundation, of a 10 million dollar program of matching grants to the National Fund for Medical Education. Ford Foundation grants will be made on a matching basis over a five-ten year period, with a maximum limit in any one year of two million dollars.

Last year the National Fund—which distributes monies raised by the AMEF along with contributions from industry and the general public—received \$2,147,000 in unearmarked funds for distribution to the nation's medical schools. Of this amount, \$422,812 came from the medical profession through the AMEF. Under the Ford Foundation formula, if these receipts are of equal magnitude in 1956, a Ford grant totaling 70 per cent of this amount, or \$1,503,486, would be made. All contributions in excess of the 1955 total would be matched dollar for dollar, subject to the annual maximum of two million dollars.

Grants will be paid to the National Fund on a sliding scale in a program that could last up to 10 years but might be accelerated to completion

in five years, depending upon the rate at which additional contributions are developed.

Second Regional Standard Nomenclature Institute

Response to the A.M.A.'s first regional Standard Nomenclature Institute was so overwhelming that another has been slated for July in New York City. The second regional Institute will be held July 9-11 at the United Hospital Fund of New York. The three-day short course will offer instruction and advice on ways of utilizing the Nomenclature in the hospital, doctor's office, or clinic. Lectures on anatomy will be given by Edward T. Thompson, M.D., editor, *Standard Nomenclature*, and on theory by Adaline C. Hayden, C.R.L., associate editor. Practice periods in coding also will be given on Monday and Tuesday evenings.

Applications should be sent to Mrs. Hayden at A.M.A. Headquarters, 535 North Dearborn Street, Chicago 10, Illinois.

* * *

New "Medical Horizons" TV Series Planned For Next Season

Live reports on current developments in medical progress will be brought to the American people over a greatly expanded television network next season. "Medical Horizons," the popular television series, will again be presented by Ciba Pharmaceutical Products, Inc., in cooperation with the American Medical Association. Beginning Sunday, September 9, "Medical Horizons" will be seen at 4:30 p.m. EDT each Sunday over 85 stations of the American Broadcasting Company television network.

The show format will remain the same. Don Goddard, veteran newscaster, will return as narrator, and Dr. William T. Strauss will continue as medical supervisor.

Watch your local newspaper for exact time and station in your area.

* * *

Guides for Industrial Nurses

Physicians in charge of industrial medical departments have found the A.M.A. Council on Industrial Health's new booklet on guides and procedures for industrial nurses to be a big time saver. Titled, "Guiding Principles and Procedures for Industrial Nurses," the booklet contains sections on qualifications, functions, relationships, and responsibilities of industrial nurses as well as standard procedures to follow. This 36-page booklet allows space for the physician to insert preferred or alternative instructions.

Since the pamphlet was first issued in February, more than 15,000 copies have been distributed throughout the country. Single copies are available free of charge from the Council. Quotations on quantity prices may be obtained from A.M.A.'s Order Department.

AMERICAN MEDICAL ASSOCIATION

The Committee on Cosmetics will sponsor a symposium at the one hundred and fifth annual meeting of the American Medical Association in Chicago, June 11-15, 1956. The symposium will be held at 3:00 P.M. Wednesday, June 13, in the Ballroom of the Knickerbocker Hotel.

This is the first time in the history of the Association that a program has been specifically planned to inform the physician on the significance of cosmetics in medical practice. This symposium was prompted by the committee's recognition of the increasing psychologic, physiologic, and economic importance of a healthy attractive skin and the close relationship between these aspects and the use of cosmetics.

NEW YORK UNIVERSITY POST-GRADUATE MEDICAL SCHOOL

A full-time eight-week comprehensive course in occupational medicine for physicians will be given in the Post-Graduate Medical School of New York University-Bellevue Medical Center from September 10 through November 2, 1956, it was announced by Dr. Norton Nelson, chairman of the Institute of Industrial Medicine.

Among the subjects being offered to physicians are: organization and administration of an industrial medical department; preventive and constructive medicine in industry; occupational diseases; toxicology and industrial hygiene for the physician; as well as biostatistics, communicable disease control and epidemiology. Opportunities will be provided for attendance at medical, surgical and clinico-pathological conferences during the course.

For further information and application address: Dean, New York University Post-Graduate Medical School, New York 16, New York.

Tuition is \$350.

POSTGRADUATE COURSE IN OTORHINOLOGY

The 1956 postgraduate course in otorhinology will be conducted by Dr. Irving B. Goldman at the Mount Sinai Hospital, New York, in affiliation with Columbia University, July 14-28.

The two weeks' course will be given daily, from 9 A.M. to 9 P.M. It will cover the basic principles of rhinoplasty, including reconstructive surgery of the nasal septum and otoplasty. Lectures, laboratory techniques, anatomic demonstrations, surgical and "follow-up" clinics are part of the program.

The tuition fee is \$300, payable to Columbia University. Candidates should apply to Registrar for Postgraduate Medical Instruction, The Mount Sinai Hospital, 5th Avenue and 100th Street, New York 29, New York.

AMERICAN COLLEGE OF GASTROENTEROLOGY

The American College of Gastroenterology, in cooperation with the Ames Company of Elkhart, Indiana, again takes pleasure in announcing the 1956 Ames Award Contest for the best papers in gastroenterology.

There will be two classes of awards as follows:

Fellows in Gastroenterology, Residents, First or Second Year Interns

First Prize—\$500.00, a certificate of merit and a one-year subscription to *The American Journal of Gastroenterology*, official publication of the American College of Gastroenterology

Second Prize—\$250.00, a certificate of merit and a one-year subscription to *The American Journal of Gastroenterology*.

For the best paper published in *The American Journal of Gastroenterology*, during the twelve months ending June 30, 1956, \$250.00 will be awarded.

All unpublished entries must be received no later than July 15, 1956, and should be addressed to the Research Committee, American College of Gastroenterology, 33 West 60th Street, New York 23, New York.

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

To stimulate interest in the field of physical medicine and rehabilitation, the American Congress of Physical Medicine and Rehabilitation will award annually a prize for an essay on any subject relating to physical medicine and rehabilitation. The contest, while open to anyone, is primarily directed to medical students, interns, residents, graduate students in the pre-clinical sciences, and graduate students in physical medicine and rehabilitation.

Manuscripts must be in the office of the American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, not later than June 1, 1956.

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

The thirty-fourth annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held September 9-14, inclusive, at The Ambassador, Atlantic City, New Jersey.

Scientific and clinical sessions will be given September 10, 11, 12, 13, and 14. All sessions will be open to members of the medical profession in good standing with the American Medical Association.

In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as to therapists, who are registered with the American Registry

of Physical Therapists or the American Occupational Therapy Association

Full information may be obtained by writing to the executive secretary, Dorothea C. Augustin, American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, Illinois.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

The National Foundation for Infantile Paralysis has announced the appointment of Miss Edith A. Aynes as coordinator of professional education program information.

Under the supervision of the director of professional education, Miss Aynes will develop and carry out plans for interpreting the program of the Division of Professional Education to professional groups, and in cooperation with the Department of Public Relations, to the lay public.

WORLD MEDICAL ASSOCIATION

On May 1 the secretariat of The World Medical Association and the United States Committee, Inc. moved to a suite of offices in the Coliseum Tower Office Building at 10 Columbus Circle, New York 19, New York.

The Coliseum was planned to accommodate the increasing number of large organizational meetings and conventions wishing to convene in New York City. It is so constructed that it offers facilities for three different conventions being held within its premises simultaneously. The American Medical Association has reserved the Coliseum space to accommodate its annual meeting in June, 1957.

The tower overlooks Central Park and is outstanding not only in its incorporation of the latest improvements to facilitate executive office procedure but is also unparalleled in its central location and convenience to all modes of city transportation.

UNITED STATES ATOMIC ENERGY COMMISSION

Award of 51 unclassified life science research contracts in the fields of medicine, biology, and biophysics was announced recently by the U. S. Atomic Energy Commission. The contracts were awarded to universities and private institutions as part of the AEC's containing policy of assisting and fostering research and development in fields related to atomic energy as specified in the Atomic Energy Act of 1954.

The contracts awarded include a grant to Maurice Whittinghill of the University of North Carolina, for a study of genetic recombination as influenced by mutagenic and non-mutagenic environmental agents.

DEPARTMENT OF THE ARMY

Draft eligible men who are skilled in one of a variety of medical specialties may qualify for the special Army Reserve program announced recently by Secretary of the Army Wilber M. Brucker, according to Major General Silas B. Hays, Surgeon General of the Army.

Under the provisions of this plan, men classified as 1-A for military duty, and qualified to serve in one of the medical specialties, may fulfill their active service obligation by performing six months of active duty. Thereafter they will be free of any further military training demands so long as they remained engaged or employed in critical civilian occupations which are peculiar to the Army Medical Service.

The Department of Labor has compiled a list of occupational specialties in which the Army has requirements or a primary interest. They include veterinary medicine, pharmacy, physiology, plant pathology, biochemistry, chemistry, entomology, parasitology, nursing, physical therapy, occupational therapy, dentistry, bacteriology, psychology and psychiatric social work.

Selection of individuals for the special Reserve program is made by Selective Service which certifies him to the Army as being eligible for enlistment in the Ready Reserve of the Army for an eight-year period.

Classified Advertisements

SURGEON: Board-eligible surgeon desires practice in group or in association with another surgeon. Reply to: Key to 75—SEC, P.O. Box 790, Raleigh, N. C.

STATE HOSPITAL AT BUTNER. Positions available for young active practitioners, psychiatric experience desirable but not essential. Good living and working conditions. Please write in the first instance to: The Medical Superintendent, State Hospital at Butner, Butner, N. C.

WANTED young energetic graduate of Southern Medical School for association in General Practice in town of 35,000 to 45,000 in suburb of Atlanta. Initial salary will be commensurate with training and ability with percentage of net income to follow after period of adjustment. Write: Medical Placement Service, 15, Peachtree Place, N.W., Atlanta, Ga.

WANTED—Technician trained in cutting and staining of microscopic sections. For details write Department of Surgery, University of North Carolina, Chapel Hill.

NORTH CAROLINA

Medical Journal



Vol. 17 No. 6
June, 1956

IN THIS ISSUE:

PRESIDENT'S ADDRESS — DONALD B. KOONCE, M.D.

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Special stress is laid on psychotherapy. An effort is made to help the patient arrive at an understanding of his life problems; and by adjustment to his personality difficulties or modification of personality traits to effect a cure or improvement in the disease. Two resident physicians and a limited number of patients afford individual treatment in each case.

For further information write:

The Pinebluff Sanitarium, Pinebluff, N. C.
Malcolm D. Kemp, M.D. Medical Director

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NORTH CAROLINA MEDICAL JOURNAL

Official Organ of

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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 17

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NUMBER 6

President's Address

DONALD B. KOONCE, M.D.

WILMINGTON

I cannot conscientiously start this, my first published communication as president of the North Carolina Medical Society, without again paying homage to my predecessor, our immediate past president, Dr. Rousseau. I only wish that I could adequately praise the excellence of his monthly articles in this JOURNAL and his work during the entire year of his Presidency.

Plans for the Coming Year

As you know, because of the expansion in our membership, Pinehurst can no longer physically accommodate the annual meeting of our Medical Society. As a result of this, our 1957 meeting will be held in Asheville, May 6 through May 9. I think we will all agree that one of the reasons for the delay in the expansion of our membership has been a fear of losing the friendly and intimate nature of our annual meetings. With the proper cooperation of all concerned, I can see no reason for such a loss. It is quite possible that, in the long run, the change in the location of our annual meetings will be beneficial. Asheville can more adequately accommodate us than can Pinehurst. The increase in available rooms will, of itself, obviate the many complaints each year of refusal of room reservations. We have been assured that the service which will be given us in Asheville will satisfy even the most critical. The only objection that I can possibly see is the additional distance that so many of us will have to travel. I would like to urge as many members of this Society as possible to plan to attend our 1957 meeting and to preserve the friendliness traditional to the meet-

ings of our North Carolina Medical Society.

Your Executive Committee, through the Committee on a Permanent Home for the North Carolina Medical Society, of which Dr. William Coppridge is chairman, last year purchased a 51 acre tract of land, 11 miles from Raleigh, with a large frontage on the Raleigh-Durham highway. This committee is continuing its activities by investigating the possibilities and probabilities of starting a definite building program in the near future.

A professional re-evaluation of our administrative organization and committee structure is being considered for this coming year. Most of us have known for some years that our administrative organization is understaffed. Our committee structure of more than 50 committees is top-heavy and in many instances overlapping. It is believed that five or six basic committees with necessary subcommittees would function more effectively at the expense of less time. Coordinated reports compiled by the chairmen of the basic committees would certainly be more easily assimilated and understood by the Executive Committee and the House of Delegates.

This next year is a new legislative year on the state level as well as on the federal level. Many legislative problems will of necessity arise at both levels and will need the full cooperation of every member of our state organization. Plans are already being made by our Legislative Committee and executive group to handle these problems as they come up in much the same manner as they have been handled in the past. It is becoming more apparent that the combined efforts of every individual member of the medical profession is neces-

Expansion of remarks made at the President's Dinner, Medical Society of the State of North Carolina, Pinehurst, May 1, 1956.

sary to combat the inroads of federal and state control.

It is hoped by similar messages in this JOURNAL to keep the membership aware of some of the aims and problems of the Executive Council during the ensuing year.

I would like to close this message with an earnest request for your cooperation and with a sincere prayer that our accomplishments may be of the same high caliber as those of your executive groups of the past.

"A Small Leak Will Sink A Great Ship."

—BENJAMIN FRANKLIN

G. WESTBROOK MURPHY, M.D.

ASHEVILLE

Dr. Rousseau has been so gracious as to give me the opportunity to present to this General Session a matter of considerable importance. Since some of the things I shall say are controversial, I wish to make it plain that Dr. Rousseau has not read this manuscript and that I am not presenting an official view of the Medical Society of the State of North Carolina. I alone am responsible.

Nothing new or unfamiliar to a majority of the members of the society will be discussed. This is an attempt to bring together and present in the simplest possible form a number of facts and observations which I believe to be worthy of your attention.

Since physician-hospital relationships will be discussed at some length, I say positively that I offer no criticism of the hospitals in Asheville. Our local hospitals are entirely ethical. I have had no conflict whatever with them.

Threats to the Private Practice of Medicine

Ours is a time of great struggle. The East is arrayed against the West, liberal against conservative, socialism against private enterprise, labor against capital, and Negroid against Caucasian. Of more immediate concern to us is a determined effort by numerous lay interests to assume control of the practice of medicine in North Carolina and the United States.

With every fiber of my being I believe that the unlimited choice of physician, the free selection of patient, the unqualified responsibility of physician to patient, the unhampered exercise of professional judgment,

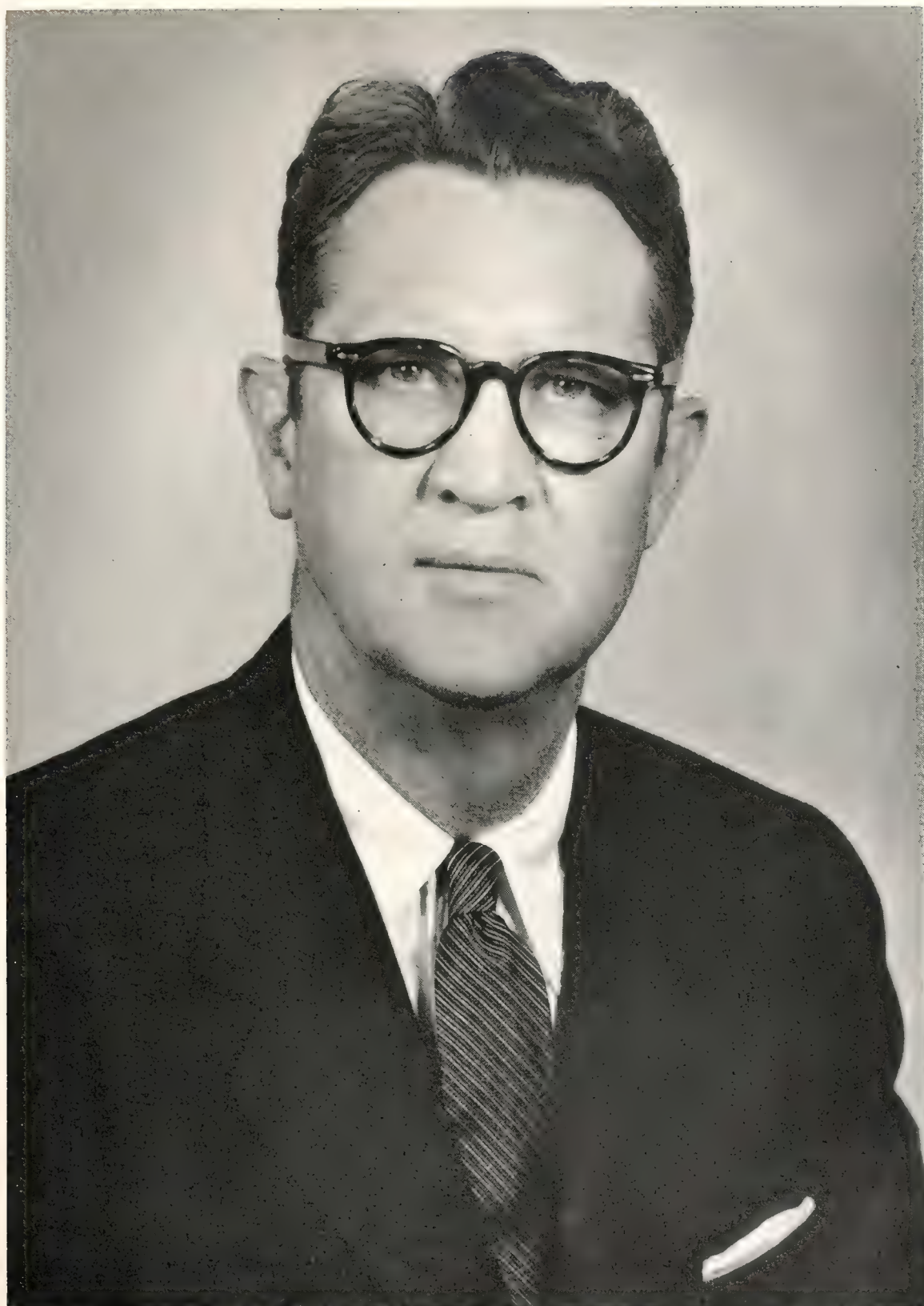
and the direct reward for individual initiative form the only possible basis for the acceptable medical care of free men. On every passing day these essential qualities are being degraded and the perimeter of private practice is being constricted. Those who are about to destroy our system of practice fall into a number of diversified groups but they have at least one thing in common. As organizations they are not "natural persons." Therefore they have no souls, they have no consciences, they cannot exercise professional judgment, and they are impersonally ruthless.

As a rule they operate behind screens of well meaning laymen who are largely unaware of their true objectives. Often they have the assistance of physicians who do not comprehend the devastating end results of their policies.

Generally, they are so well organized as to demand and secure conformity from their component units.

There is nothing vindictive or punitive in their attitude toward medicine. Unfortunately we are "caught in the middle" as we stand in the way of their expanding programs. The day is not far off when industry, labor, government, insurance companies, hospitals, and related groups will combine in their campaign to control all health activities. If we are not organized into a position of strength, private practice, as we have known it, will cease to exist.

I will give to you a number of illustrations and endeavor to make some observations which will convince you beyond reasonable doubt that the private practice of medicine in North Carolina is in imminent danger of



DONALD B. KOONCE, M. D.

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losing its status as a professional art and is being forced into the mold of a trade. The very keystone of practice is the patient-doctor relationship. The respect of patient for doctor and the influence of doctor with patient are the primary targets at which all attacks are directed.

Industrial and labor groups

As illustrated by the Kaiser Medical Service Plan on the West Coast and by a proposed plan of the Atlantic Coastline Railroad in Wilmington, industry over the nation is building a series of hospitals and is organizing medical service plans for employees and their dependents, which are staffed by salaried and closed panel physicians.

Labor also is establishing hospitals and complete medical service plans, staffed by salaried and closed panel physicians, to care for their members and their dependents.

At a recent congressional hearing, Frederick F. Umbrey, executive secretary, The International Ladies Garment Workers' Union, complained of the lack of cooperation from physicians and recommended that the Sherman Antitrust Act be so amended as to include medical and hospital services.

Dr. Edwin F. Dailey, vice president of the Health Insurance Plan of greater New York has predicted that organized labor will soon establish the pattern of medical care in the United States.

Federal and state encroachments

The Veterans Administration is providing hospital care and medical service for an ever increasing number of non-service connected disabilities. It is not impossible that within the near future dependents of veterans will be included.

The vast Social Security system now provides cash payment and medical and remedial care for needy individuals 18 years of age or older when permanently and totally disabled. It seems quite likely that by means of House Resolution 7225 the Social Security Act will be so amended as to provide cash benefits to workers 50 years of age and older who are totally and permanently disabled. These people will, of necessity, have their disability certified by private physicians at government expense.

Medical and hospital care for federal employees and their dependents and for members of the armed forces and their dependents

is being expanded at a tremendous pace.

The use of federal funds for medical schools, hospitals, and clinics has increased to an alarming degree, and the end is not in sight.

The North Carolina Department of Health is ever encroaching further on the private practice of medicine.

Immunization and the diagnosis and treatment of tuberculosis are now largely in the hands of the health department.

The belief that industrial medicine should be a health department activity is held by many officials.

In his report to this society in 1955 Dr. J. W. R. Norton, our State Health Officer, indicated a trend when he suggested that non-communicable diseases such as cancer, nephritis, diabetes, arthritis, and cardiovascular disease should be brought under health department control.

I quote two paragraphs from his report:

We are now at about the same stage of medical knowledge regarding these chronic, non-communicable disorders at which our predecessors found themselves when joint efforts of private practice and public health began to be coordinated against the communicable diseases. We are afforded the opportunity to proceed humanely and cooperatively, as was done so successfully against the infectious diseases.

The work of the private practitioner will be just as ethical and much more satisfying as all chronic disorders are promptly diagnosed and control efforts are made more effective. Our state is in a strategic position to lead the way in combatting chronic, non-communicable disorders and accidents, just as private practitioners and the public health team joined hands to pioneer in communicable disease control.

The State of North Carolina maintains a large university clinic and hospital which accept patients of all classes. To the best of my knowledge, professional fees are then diverted to some degree into university funds. Thus, physicians are employed by the state, given the prestige of a connection with the university, and maintained in active competition with private practice.

Other groups

The national organization of the optometrists is asking for the passage of state laws which would limit refractions to licensed op-

tometrists. Ophthalmologists would thereupon be required to secure such licenses.

There is reputed to be an active national organization of attorneys which undertakes to train its members in refuting medical testimony and in securing larger judgments in professional and other liability cases.

Supervision by hospitals

The American Hospital Association is adopting the concept that the hospital should be the purveyor of all health services in the community, and that all who render service, including physicians, should be salaried employees.

Local doctors believe that the Virginia Hospital Association is about to sponsor an act in the state legislature which would specifically authorize hospitals to employ all categories of physicians.

Until stopped by the Insurance Commissioner, a group of hospitals in New York forced the medical staffs to turn over to administrators the fees for services rendered industrial cases in their institutions.

It is becoming more and more prevalent for administrators to attempt to direct the treatment given to patients, including the ordering of special examinations, in order to increase hospital income.

A California hospital has demanded that staff members submit their private books for audit. The board of another hospital passed a regulation forbidding the medical staff to meet for even a social gathering unless the administrator was present.

I have been told directly by one of those involved that Jefferson Medical College recently dismissed four outstanding members of its teaching and hospital staff who refused to engage in financial practices which were unethical and in competition with private physicians.

There are hospitals in North Carolina who hire physician-employees so that the differences in fees collected and the salaries paid provide a source of income for the institutions.

One North Carolina hospital passed and attempted to enforce a regulation requiring that the medical staff turn over to the hospital from 10 per cent to 50 per cent of moneys earned in private practice within the institution.

Another North Carolina hospital tried to enforce a rule which would require physi-

cians to purchase staff appointments at the rate of \$500.00 each.

The Medical Care Commission

The Medical Care Commission was created with the blessing of the Medical Society of the State of North Carolina. We are all familiar with how the dispensing of construction funds and the use of the hospital licensing power have brought North Carolina hospitals under the dominance of the Commission to a remarkable degree. Now the Attorney General of the State of North Carolina has written an opinion concerning hospitals and the Medical Care Commission which I quote in part:

It is my opinion that the Legislature authorizes hospitals licensed under the Act to prescribe the qualifications for those who treat the sick in the hospital and that as a part of its power the hospital may arrange with physicians and surgeons for the treatment at the hospital at fair and reasonable cost.

Need I say that the prospect of seeing the hospitals and the Medical Care Commission authorized to direct treatment given by, and to set the fees of, physicians who care for patients in hospitals which are licensed by the Medical Care Commission is a frightening specter? The North Carolina Industrial Commission, commercial insurance companies, Blue Cross Plan and, yes, even Blue Shield use the power of the purse to prescribe to a considerable degree how, when, and what treatment shall be given to patients covered by their insurance policies. At this moment, we find ourselves "on the sidelines, listening to representatives of insurance companies, bargaining with labor and management on fees, rates, coverage and services. The representatives of labor and management will insist on complete services for as little as possible. Labor will represent millions of people. Business will represent the greatest part of the money behind the plan. Representatives of the insurance companies will try to satisfy both and you will have nothing to say about it providing you will have agreed to participate."

Alternative to Appeasement

Beginning about 1935, the federal government, as later led by Mr. Oscar Ewing, undertook to nationalize and socialize medicine in the United States. In an effort to belittle the profession in the eyes of the public an

organized campaign of vilification was begun. From then until now we have followed a plan of apology and appeasement. It has not worked for medicine any better than a similar plan has worked for the United States in world affairs.

We have behaved like a flock of stupid chickens under the shadow of the hawk. As individuals we have scurried for the nearest cover or crouched in trembling terror with little thought of defense and less care for the welfare of our fellows. In my opinion, the time for apologies has passed. We should use our minds and our hearts to determine what is best for those we serve and what is best for the medical profession, and then follow the prescribed course without regard for the inevitable obstacles which we will encounter.

We live in a society which is largely controlled by tightly organized groups, and I submit to you the hypothesis that in it only an organized group can survive. In the eyes of the public we are, and I use the ugly word, a union. We bear the excoriation and censure which is often heaped upon unions, but we have not had the advantages which come from union organization. I do not suggest that now or ever in the future we refuse to give our best professional services to all the sick who need us. I do suggest that we use the power of this organization to control the social and economic circumstances under which our services are rendered when a third party intervenes between physician and patient.

Many of you who are of my generation will, as I did, draw back in horror from this idea which will seem to you to be a prostitution of medical ideals. To you I say that after months of soul-searching I am convinced there is no other way. Many of you of a younger generation will resist this idea, because you will see in it factors which will disturb your present conditions of practice. To you I say that you must choose between submitting to a considerable degree of intramural discipline or else finding yourselves forever displaced to the level of the artisan. To all of you I say that if you have a better plan of procedure, your profession has never needed the fruits of your hearts and brains more than at this moment.

Careful consideration may convince you, as

it has me, that we must capitalize on the one privilege which is generally conceded by the courts and which is thoroughly incorporated in our legal structure—namely, the right to use organizational membership to control the conditions of gainful employment.

I propose specifically that the Medical Society of the State of North Carolina create a commission of the five most level-headed, most astute, most dedicated, and most courageous men to be had to undertake the continuing task of planning an immediate and a long-range defensive and offensive program designed to preserve the private practice of medicine in North Carolina.

I strongly recommend that you read and reread Dr. Rousseau's President's Message as published in the January issue of the NORTH CAROLINA MEDICAL JOURNAL. From that really extraordinary writing I copy two quotations, the first by George Washington:

"If to please the people, we offer what we ourselves disapprove, how can we afterward defend our work? Let's raise our standard to which the wise and honest can repair—the event is in the hand of God."

The second is from Benjamin Franklin:

"They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety."

Conclusion

1. Our social and economic order is largely controlled by highly organized pressure groups and in it only such groups can hope to maintain their integrity. This situation is most unfortunate, but it cannot be changed. It must be accepted.

2. The Medical Society of the State of North Carolina must recognize and acknowledge the gravity of the situation.

3. As we stand idly by, our rights and privileges and our immunities are being bargained away by representatives of labor, industry, Government, insurance companies and hospitals. I propose that the Medical Society of North Carolina assume the prerogative of doing its own negotiating with third party agencies.

4. "Freckles would make a very respectable coat of tan if they could only get together."

State and Local Health Department Services in North Carolina

J. W. R. NORTON, M.D., M.P.H., F.A.C.P.M.*

RALEIGH

Since so many have only a partial knowledge of the services of the state and local health departments, it seems appropriate to outline these functions so that we may have more informed medical guidance in planning future programs.

The state and local health departments in North Carolina have enjoyed a growth in quality and quantity comparable to that of general hospitals and private practice during the same period. Our Medical Society was for two years, beginning in 1877, the State Board of Health, and for two years was operated with an annual appropriation of \$100.00. In 1879 a Board of nine, similar to that of today, was set up. It was 29 years later that a full-time physician was employed. The era of emphasis on fumigation, quarantine, and regulation-enforcement was as unsatisfactory in prevention as the groping progress in private practice during the same period was in treatment.

The nine-member State Board of Health (five appointed by the Governor and four by this Medical Society, six of whom are physicians, with staggered four-year terms) formulates policies and prescribes regulations and procedures that are carried out administratively through the 300 central staff and 1200 local department employees.

The Central Staff Organization

The central staff organization is set up under the State Health Officer and Assistant State Health Officer, with six Division Directors and about 30 section chiefs. The bare listing of titles suggests the programs and services.

1. The Central Administration includes budgets, personnel, files, printing, mailing, public relations, film library and public health library.

2. The Division of Epidemiology embraces the following sections: acute communicable

diseases, public health statistics, venereal diseases, tuberculosis, occupational health, home and farm accident prevention, and veterinary public health. Epidemiologic consultations are increasing in frequency and usefulness.

3. The Laboratory Division protects the public health through services to private physicians, hospitals, and health departments, through: biologicals, microscopy, cultures, serology, water analyses, chemistry, and approval of laboratories. The growing library should be of increasing helpfulness to health staffs and private physicians.

4. The Local Health Division has sections as follows: administrative, public health nursing, mental health, health education, and (jointly with the Department of Education) school health.

5. The Oral Hygiene Division provides education through visual media, lectures and literature, and also services in consultation, correction, and prevention.

6. The Personal Health Division includes sections on maternal and child health, crippled children, nutrition, cancer, and heart disease.

7. The Sanitary Engineering Division includes four sections: sanitation (environmental factors, public eating places, milk, and shellfish), engineering, insect and rodent control, and stream sanitation. Radioactive wastes, air and stream sanitation, and housing are of increasing importance.

Local Departments

Local health departments began in 1911 under the leadership of North Carolina's first full-time health officer, Dr. Watson S. Rankin, and reached the entire state by July, 1949. From the beginning there has been local autonomy, flexibility and adaptability, and medical guidance. Strong local boards, actively supported by the county medical societies and the public, have assured progressively better health services.

From the minimum of a health officer, public health nurse, sanitarian and clerk (each full-time) and a ten-week oral hygiene

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program, to a large department such as Mecklenburg's (with about 150 workers, including a full-time dentist), the services are provided mainly on an economical, generalized basis.

Services of local health departments may be described briefly under seven headings:

1. *Sanitation*: The utmost in tact and leadership is required to ensure clean drinking water and milk, safe disposal of human wastes, safe food processing and vending establishments, and healthful schools and camps. More should be done to protect our streams and the air from contamination and to promote better housing for everyone, including migratory farm laborers. Certain insects and rodents have depleted food, clothing and shelter, and have spread epidemics. The health department team wages war on those harmful to us. The approach is through education and helpful guidance rather than dictation.

2. *Good maternal and child hygiene* begins with planned parenthood and extends through prenatal, natal (including midwife supervision), postnatal, infant, preschool, and school periods. Nutrition and oral hygiene services are essential. Services for crippled children and rehabilitation restore many disabled people to useful, happy lives. In this area we have achieved a cooperating team of private physicians, hospital personnel, and a public health staff, whose services always include research and teaching. Research indicates that a constructive maternal and child health program will definitely reduce the incidence of mental deficiency, juvenile delinquency, and possibly some of the later neuroses, psychoses and degenerative diseases. This is not too far back to go in planning a preventive program in gerontology.

3. *Communicable disease control* depends on sanitation activities, immunizations wherever possible, and, as in all other areas of health progress, the cooperation between the public health team, the private practitioner and the hospital team is essential. Progress against the diarrheas, dysenteries, smallpox, typhoid, tuberculosis, diphtheria, and malaria shows what this coordinated effort can accomplish. Health workers have had an important role in improving the treatment of tuberculosis and venereal diseases, and as a result many of these patients can now be

better treated in doctors' offices.

4. *Laboratory services of the local health department* assist in clinic programs and also aid the private physician. Prompt diagnostic aid in the more common communicable diseases and in milk and water examinations are examples.

5. *Health education* is the job of the entire staff, under the stimulating leadership of those with specialized training in this field. All individual, group, and mass efforts, including audio-visual media, are useful. The nurse or sanitarian can give detailed instruction to supplement the brief visits with and to the family physician. The health department can inform the public regarding quacks and faddists and encourage early supervision by the competent and ethical medical practitioner.

6. *Public health statistics* constitute the inventory—the income and the outgo—of human resources. They may explain losses and point the way to gains. They assist the private practitioner by alerting him in diagnosis and point the way for teamwork in recognizing and combatting the enemies of life and health. Sound evaluation and program planning are impossible without accurate health bookkeeping.

7. *Chronic diseases, mental disorders, and accidents* can be attacked jointly by those in research and teaching, by health departments, and by private practitioners using the same methods that have been proved useful against communicable diseases. Diseases of the heart and blood vessels, cancer, mental disorders, and accidents are increasing in our aging and hurried population. We have much to learn regarding the etiology of mental disorders and the chronic degenerative diseases. We have reason to believe that early case-finding and medical guidance, with follow-up by nurses, can be useful in most cases. We hope soon to learn more about the part played by nutrition, endocrinology, and the viruses. Health statistics are useful in identifying problems in these areas, and health departments can inform the public on the necessity of cooperation in prevention and treatment.

Services of local and state health departments are so intertwined that it may become difficult to distinguish them. Wherever direct services or specialist consultation are

not feasible through the local health department, the state provides them.

Special Services

Services of local health departments are recognized as the most important, but any large business requires a reasonable overhead guiding and cohesive force; hence central administration, public health statistics, and laboratory services. Since most local department personnel serve on a generalized basis, the state provides a few state or district specialist-consultants in such fields as sanitary engineering, nutrition, laboratory activities, public health nursing, and epidemiology. Direct services to local health departments and private physicians are provided through the divisions on maternal and child health, rehabilitation, laboratory examinations and the supply of biologic products, oral hygiene, tuberculosis and venereal disease case-finding, accident (home and farm) prevention, and health education. Private physicians are also aided through laboratory, epidemiologic, and statistical services, and study committees of this Society through statistical, epidemiologic, and other services. Many consultative health services are provided other state agencies and institutions such as those dealing with sanitary engineering, nutrition, and food service for the Medical Care Commission, prisons, tuberculosis and psychiatric hospitals, and training schools. Consultation is provided municipalities regarding design and construction of water treatment and sewage disposal plants. Materials used in the manufacture of bedding are inspected. Insect and rodent control measures are available to assist municipalities and private industries.

Occupational health activities protect workers and promote industrial development. Veterinary public health services (in close cooperation with the Department of Agriculture) help control diseases which primarily attack animals but secondarily man, and stimulate the livestock industry. Oral hygiene has far-reaching effects in maternal and child health, reduces absenteeism, and probably reduces the degenerative diseases of our aging population. Mental health services are

being developed along lines similar to our tuberculosis control work; namely, some central or district assistance in case-finding and consultation, and local instructional guidance and follow-up. Public health has played a key part in the considerable reduction of mental disorders of paresis and pellagra.

Conclusion

These many services provided by the state and local health departments are helpful to all our four and a half million citizens and enhance the attractiveness of private practice throughout our state. By the prevention of disability and the postponement of death, the standard of living is raised. The private physician or dentist can be called earlier when illness or injury does occur, if the family has not previously been handicapped by preventable disabilities. Agriculture and industry are stimulated and tourists are attracted to come and to return to the state. The people are becoming better informed as to what they may reasonably expect in prevention, diagnosis, treatment and rehabilitation; if any one area is neglected, the public relations of every physician and of organized medicine suffer accordingly.

The cost of these public health services is amazingly low. From a total expenditure for the fiscal year 1955 of \$8,007,917.44, or less than \$2.00 per capita, 70 per cent (\$5,623,263.32) was used by local health departments. Much of the remainder was invested in direct services or in consultative services to local health departments, to other agencies and institutions (state and local), and to private physicians and hospitals. For clinic and corrective services private physicians were paid \$240,202.78, and hospitals received \$548,253.42. Yet the per capita cost of local health services was \$1.385, with county-city appropriations providing 75 per cent, and for state health department services, the cost was \$.587. The continuation of this ethical teamwork in a sound and balanced preventive program, with emphasis on economical decentralization and progressive and unselfish private practice offers the best hope of preserving our free enterprise system.

The New Medical Examiner Act of North Carolina

K. M. BRINKHOUS, M.D.

CHAPEL HILL

Last year the General Assembly of the State amended the statutes in relation to postmortem medico - legal examinations. This Act became effective January 1 of this year and makes possible a major reform in the manner of investigating unattended deaths of public concern. In this paper, three aspects of the coroner-medical examiner system of North Carolina will be considered: (1) historical considerations which led up to this new legislation, (2) the chief provisions of the new Act, as well as a comparison with a so-called model Act, and (3) certain requirements which need to be met if the new system is to be an effective force in the state.

Historical Aspects

The coroner

The coronor has been a part of our society since very early times. Myren, of the Institute of Government of the University of North Carolina, has reviewed both critically and exhaustively the history, legal basis, and functioning of the coroner system in this state in two separate publications, in 1953 and 1956⁽¹⁾. The word coroner is derived from the Latin *corona*, "from the Crown." This office had its origin in England long before the Magna Carta. Its main function for centuries has been the investigation of apparently unnatural deaths. Statutory provision for the office in North Carolina was first made in the Colonial Period nearly two and one-half centuries ago. Ever since the Declaration of Independence, the office of coroner has been provided for in the State Constitution.

In the first Constitution, framed in 1776, the Thirty-eighth Article stated "That there shall be a Sheriff, Coroner or Coroners, and Constables, in each County within this State." The constitutional provision for coroner was retained in the present Constitution adopted in 1868. In the

Article dealing with the Judicial Department is a Section which reiterates that in each county there shall be a Sheriff and Coroner, elected for a four-year period. Although many amending statutes have been passed regarding the duties of coroner, the function of this official has actually changed but little since 1715. This year there occurred a major change in our state laws regarding investigation of unnatural and suspicious deaths. Under the new law the major function of the coroner's office may be transferred to a medical examiner. Why was there so much dissatisfaction with the coroner office, whose roots are so deep in our history, as to bring about this new legislation?

Need for revising the coroner system

The chief disadvantages of the coroner system in North Carolina appear to be the following:

1. The coroner is an elected official.
2. There are no special qualifications for coroner. All that is needed of a candidate is that he be a qualified voter in his county. Myren^(1b), in searching through the laws of our state, did find three other qualifications: (a) He must not "deny the being of Almighty God," (b) he must not have issued a challenge for or fought a duel, and (c) he must not have been convicted of or pleaded guilty to a crime punishable by state imprisonment!
3. Jurisdiction to investigate cases is limited. Furthermore, there is not even a requirement that the coroner be notified of deaths which should be investigated.
4. No adequate provision is made for medical and scientific assistance.

The Medical Society of the State of North Carolina has taken the lead in correcting the deficiencies of the coroner system. Each year since 1948 this Society has had a committee working to improve the situation. We owe much to these committees, and particularly to their chairmen, Drs. James B. Bullitt, Wiley D. Forbus, and the present chairman, John H. Hamilton. Two basic alternatives faced the various groups that studied the problem. The

From the Department of Pathology, University of North Carolina, Chapel Hill.

Read before the Second General Session, Medical Society of the State of North Carolina, Pinehurst, May 2, 1956.

first alternative was to modernize the office of coroner, to strengthen its legal basis, and to provide for needed medical and other scientific assistance. Many favored this approach. It was pointed out that, since the office was a constitutional one, there was little possibility that our Constitution could be altered quickly. So regardless of other solutions, the coroner would continue to be a county official. The other alternative was to establish a separate medical examiner system which would largely supersede the coroner in medico-legal investigations. The latter view prevailed.

Well-functioning statewide medical examiner systems have been in effect in our neighboring states, Virginia and Maryland, for several years. Bills embodying a somewhat similar system were introduced in both the 1951 and the 1953 legislature⁽²⁾. Not until 1955 were these efforts rewarded. Then a system differing in many respects from all earlier proposals was adopted.

The Medical Examiner Act: Comparison with Model

The National Municipal League⁽³⁾ several years ago outlined a model system for a medical examiner system. We might first outline the essentials of this model system, and then compare our present law with the model.

Essentials of model system

First, there are medically qualified local examiners with clearly defined jurisdiction as to classes of deaths which are to be investigated. Second, there is a supervisory commission at the state level composed of law enforcement, legal, and medical representatives. Third, there is a full-time state or chief medical examiner. This official is a pathologist who provides leadership and technical advice and services for the whole state system. He directs a central medico-legal laboratory with staff and equipment for essential work in pathology, toxicology, possibly ballistics, and other specialized work. The system is statewide and uniform in its operations.

The North Carolina medical examiner law

Now let us examine the chief provisions of the North Carolina Law⁽⁴⁾ (See appendix). First of all, the framework of a statewide system is provided. However, each county has the option to adopt the medical

examiner system or to retain the present coroner system. Second, at the state level, the system is centered in the State Board of Health. A special committee, the Committee on Postmortem Medico-legal Examinations, has been established to administer the provisions of the Act through the State Health Officer. This Committee consists of the State Health Officer as chairman, the Attorney-General and the Director of the State Bureau of Investigation or their representatives, the heads of the three medical school pathology departments or their representatives, and a lay representative appointed by the Governor*. The chief duties of this Committee and its chairman are the following: (1) to promulgate rules and regulations for the new medico-legal investigative system; (2) to divide the state into districts, and in each district appoint a district pathologist; (3) to appoint, with the approval of the County Board of Commissioners, county medical examiners; and (4) to maintain a toxicology laboratory and a central records file.

At the county level, clear provision for the duties of the medical examiner is made. The county medical examiner unlike the coroner is always a practicing physician. And he is an appointed official. Legally, the medical examiner is in a much better position than the coroner. The new law provides for notification of the medical examiner of occurrence of those types of deaths which are to be investigated. The examiner's jurisdiction is explicitly stated in the new law.

Our new law then definitely breaks with the tradition of the coroner system. It differs from the model in many respects. Further, it is not exactly like any other medical examiner system now in operation. It is a permissive system without a chief medical examiner to head up the whole undertaking. It may thus be characterized as an optional, largely decentral-

*The present membership of the Committee, which had its first meeting December 19, 1955, is as follows: J.W.R. Norton, M.D., State Health Officer, Raleigh, Chairman; K. M. Brinkhous, M.D., professor of pathology, University of North Carolina, Chapel Hill, secretary; Wiley D. Forbus, M.D., professor and head of the Pathology Department, Duke Medical School, Durham; Smith Foushee, M.D., Pathology Department, Bowman Gray School of Medicine, Winston-Salem; The Honorable Harvey W. Marcus, Representative of the Attorney General, Raleigh; Mr. Holt McPherson, editor, *High Point Enterprise*, High Point; and Mr. James W. Powell, State Bureau of Investigation, Raleigh.

Table 1

Prevailing Medico-Legal Systems in U. S.⁽⁶⁾

System	No. States
Coroner	31
Medical examiner	7
Combination, coroner and medical examiner	10

ized system. At the state level, there is a supervisory committee and a state toxicology laboratory.

It is envisaged that the new system will operate as follows: First of all, individual counties will come into the system if and when the board of county commissioners so elect. The State Health Officer, with the approval of the State Committee and the county commissioners, will appoint a county medical examiner. The medical examiner in carrying out his investigative duties under the act has available the services of a district pathologist when an autopsy is needed. The state has already been divided into 35 districts, and district pathologists are being appointed. The district pathologist will have available the services of a state toxicology laboratory. Payment of the medical examiner and the district pathologist is by fees fixed by the county commissioners. The method of handling toxicology costs is not yet determined⁽⁵⁾.

We might stop for a moment, and ask how North Carolina fits into the national pattern with this new law. Is the dual system — coroner and medical examiner — unique? A review of the systems used in the various states is shown in table 1. The majority of states still rely on the coroner system. A minority of states have a medical examiner system, and only a few of these states approach the model. Finally, many states, including North Carolina, operate under a mixed system, a coroner having authority in some counties and a medical examiner in others. In many of the states with a mixed arrangement, the medical examiner system is limited to the highly urbanized sections.

Implementation of New System

The passage of this new law is a challenge to the medical profession of the state. The law by itself will accomplish little. It must be implemented. At the county level, an educational program is needed so that the county commissioners will appre-

ciate the improvements made possible by the new law. Our county medical societies and individual physicians can undoubtedly do much in pointing out the advantages of the new system. Physicians need to make themselves available for appointment as county medical examiners. The system, to become effective, must have the active cooperation of the pathologists in the state. The North Carolina Society of Pathologists has already indicated its support of this new program. However, pathologists are still relatively scarce in the state, and it will not be possible initially to have a resident pathologist in every district.

At the state level many things are in order. Very important is the establishment of a state toxicology laboratory. Work has already started on the provision of a clear set of rules to guide both the medical examiner and the district pathologist. Probably most important of all is the sponsoring of an educational program through which participating physicians may become better informed in this specialized phase of medicine—forensic medicine. We are fortunate in having a state agency, the Institute of Government of the University, which has done pioneer work in education and guidance of local officials, and which has done much for the coroners of the state in the past. Perhaps the efforts of this Institute can be extended in this field also.

At both the state and local level adequate budgetary support is needed. Probably one reason the coroner system has done so poorly in several parts of the state is because of lack of support. This will need to be overcome in the medical examiner system if it is to flourish. Even with our best efforts, it will probably be years before this new system is universally adopted. To date, two counties out of our 100 have elected to join.

Summary and Conclusions

The legal framework has been provided for the evolutionary development of a statewide medical examiner system. The system may be characterized as optional by counties and largely decentralized in its operation. Much effort must still be given by the medical profession as well as by other groups at both the county and state level if we are to make this a satisfactory system. During this developmental phase,

the understanding of the whole profession is needed, and the energetic support and active participation of physicians as medical examiners and as district pathologists is required. Eventual strengthening of the law would appear to be in order, with amendment of the Constitution to eliminate the mandatory retention of the office of coroner.

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H. B. 147

CHAPTER 972

AN ACT TO REVISE THE LAWS OF NORTH CAROLINA WITH RESPECT TO POSTMORTEM MEDICOLEGAL EXAMINATIONS.

The General Assembly of North Carolina do enact:

Section 1. Chapter 130 of the General Statutes of North Carolina is hereby amended by adding thereto a new Article, to be designated "Article 30. Postmortem Medicolegal Examinations", consisting of 12 new Sections numbered 130-293 to 130-304 and to read as follows:

"ARTICLE 30

Postmortem Medicolegal Examinations

G. S. 130-293. Committee Created.—For the purpose of administering this Article, there is hereby created within the State Board of Health a committee to be known as the Committee on Postmortem Medicolegal Examinations, which committee shall consist of seven persons, six of whom shall be ex officio members designated by notification in writing to the Governor as follows:

- (1) The State Health Officer.
- (2) The Attorney General, or a member of his staff designated by him.
- (3) The Director of the State Bureau of Investigation or a member of his staff designated by him.
- (4) The Head of the Department of Pathology of the Medical School of the University of North Carolina or his representative from said department designated by such departmental head.

(5) The Head of the Department of Pathology of the Bowman Gray School of Medicine of Wake Forest College or his representative from said department designated by such departmental head.

(6) The Head of the Department of Pathology of the School of Medicine of Duke University or his representative from said department designated by such departmental head.

(7) One member shall be a layman appointed by the Governor.

The State Health Officer shall be the Chairman of the Committee.

Regular meetings shall be held at such times as may be determined by the committee, and special meetings may be called at any convenient time and place upon reasonable notice signed by any three members.

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Four members constitute a quorum for the transaction of any business coming before the committee.

The ex officio members shall have all the privileges, rights, powers, and duties of the appointed member and shall serve on the committee during the tenure of their respective offices or that of the officer they represent. The member appointed by the Governor shall serve for a period of four years.

G. S. 130-294. Powers and Duties of the Committee.—The committee shall have power subject to the approval of the State Board of Health:

(a) To make, amend, repeal, and promulgate necessary rules and regulations for its own government and procedure and for the performance of its duties under this Article, including the power to allocate the expenses of performing autopsies and to impose and allocate the expenses of performing toxicological studies.

(b) To accept grants, contributions, gifts, devises and bequests which may be used for purposes not inconsistent with the said grants, gifts, contributions, devises and bequests and for any other purposes as deemed necessary by the committee.

(c) To authorize the Chairman of the Committee and his employees to cooperate with all educational institutions and law enforcement agencies of the State for the purpose of furthering medico-legal education and training.

(d) To establish and maintain a toxicological laboratory under the supervision of the State Board of Health or if the committee deems it advisable so to do, contract with other technical personnel or for the use of technical facilities for the purpose of providing toxicologic service.

G. S. 130-295. Powers and Duties of the Chairman of the Committee.—It shall be the duty of the Chairman of the Committee to attend the meetings of the committee, to keep a record of such meetings, to attend to the official correspondence of the committee, to act as custodian of the files and records of the committee, to receive reports

directed to the committee, to cause to be performed and to supervise and control medicolegal postmortem examinations, to furnish pertinent information and reports relating to such investigations as directed by the committee, and to perform all other duties delegated to him by the committee.

G. S. 130-296. Assistants and Employees, Salaries and Expenses.—

(a) The Chairman of the Committee may, with the approval of the committee, employ such professional, clerical, technical, and other assistants as are necessary to serve at the pleasure of the Chairman of the Committee and, subject to the provisions of the State Personnel Regulations and budgetary laws, fix the compensation and travel expenses of all persons so employed, such compensation and travel expenses to be in keeping with the compensation paid to persons employed to do similar work in other State departments, institutions, or commissions.

(b) No salary or other compensation for services shall be allowed members of the committee who already receive compensation as officials or employees of the State. Service on the committee is to be considered as part of the duties of such officials as representatives of their respective departments. Reimbursement for travel shall be made from travel funds available in their respective departments. The other members of the committee who are not officials or employees of the State shall receive ten dollars (\$10.00) per day, including necessary time spent in traveling to and from their place of residence within the State to any place of meeting or while traveling on official business of the committee. In addition, they shall receive mileage according to State practice while going to and from any place of meeting or when on official business of the committee.

(c) For the more efficient conduct of the fiscal affairs of the committee, as well as for the convenience of any State agency, officer or department that may hold or have appropriated to or the custody of funds for the use and benefit of the committee, all such funds shall be held in a separate or special account on the books and records of such State agency, officer or department with a separate financial designation or code number to be assigned by the Budget Bureau or its agent, and said funds shall be expended solely upon the proper authorization or order of the committee.

G. S. 130-297. District Pathologists.—The committee shall have the power to divide the State into districts, and to alter such districts as from time to time the committee shall see fit, for the more effective administration of its duties under this Act. The Chairman of the Committee shall be empowered, with the concurrence of the committee, to appoint District Pathologists to serve at the pleasure of the committee. Any person holding the office of coroner may be appointed as District Pathologist or as a member of the committee,

and any coroner who may be so appointed shall serve as such as a part of his duties as a coroner and shall not be considered as holding a separate office within the meaning of Article 14, Section 7, of the Constitution of North Carolina.

It shall be the duty of each District Pathologist with whatever aid, assistance, and guidance by the Chairman of the Committee as the circumstances may require, to perform a complete autopsy upon the body of the deceased in cases referred to him, under the provisions of G. S. 130-300 of this Act, and to make pathological studies of such anatomical materials as may be submitted to him by any medical examiner in his district or by others empowered by this Act to make such reference in the performance of their official duties.

The District Pathologist shall prepare a report to the Chairman of the Committee on every postmortem examination, and on every pathological anatomical study, in such form as may from time to time be prescribed by the committee, copies of which he shall deliver to the referring medical examiner or other referring person, to the Solicitor of the Superior Court of the district, and to the coroner of the county wherein the body of the deceased or any part of a body examined by him was found: Provided that a copy of said report shall be furnished to any other interested person upon order of a Court of Record after need therefor has been shown.

For each autopsy performed by reason of reference by a medical examiner or by others empowered by this Act to make such references, the District Pathologist shall receive a fee to be fixed in each case by the board of county commissioners, after consultation with the committee, and paid by the county of legal residence of the deceased or by the county wherein the body remains of the deceased were first found, if the legal residence is unknown or is other than the State of North Carolina.

For each report made on pathological anatomical materials submitted to him for study, the District Pathologist shall receive a fee to be fixed in each case by the board of county commissioners, after consultation with the committee, and paid by the county wherein the anatomical materials were first found.

Such fees shall constitute full compensation of the District Pathologist for duties performed under this Section of the Act.

G. S. 130-298. County Medical Examiner.—The Chairman of the Committee shall appoint, subject to the approval of the committee and of the board of county commissioners of each county of the State that elects to come under this Article, a qualified and practicing physician as medical examiner for the county to serve at the pleasure of the board of county commissioners and until his successor has been appointed and qualified, and

said person so appointed may be the county coroner, and any coroner who may be so appointed shall serve as such as a part of his duties as a coroner and shall not be considered as holding a separate office within the meaning of Article 14, Section 7 of the Constitution of North Carolina. Each county medical examiner may appoint one or more assistant county medical examiners, with the concurrence of the Chairman of the Committee, to serve at the pleasure of the county medical examiner who makes such appointment.

Upon the death of any person on or after the effective date of this Act apparently by the criminal act or default of another, or apparently by suicide, or suddenly when apparently in good health, or while an inmate of any penal or correctional institution, or under any suspicious, unusual or unnatural circumstances, the medical examiner of the county in which the body of the deceased is found shall be notified by the physician in attendance, by any law enforcement officer having knowledge of such death, by the undertaker, by a member of the family of the deceased, by any person present, or by any person having knowledge of such deaths, and no person shall disturb the body at the scene of death until authorized by the county medical examiner. In cases which come under G. S. 152-7, the medical examiner shall notify the coroner.

A similar procedure shall be followed upon discovery of anatomical materials suspected of being or determined to be a part or parts of a human body.

G. S. 130-299. Duties of County Medical Examiner.—Upon receipt of notice as specified in G. S. 130-298, the county medical examiner shall in each case make a physical and medical examination of the body or parts of a body which may be found, make inquiries regarding the cause and manner of death, reduce his findings to writing, and promptly make a full report thereof to the coroner of the county in which the body or any part of a body was found, to the Solicitor of the Superior Court of the district in which the body or any part of a body was found, to the Chairman of the Committee and may, upon request furnish a copy of his report to the head of the law enforcement agency charged with the responsibility for the investigation of the incident upon forms or in the manner prescribed by the committee: Provided that a copy of said report shall be furnished to any other interested person upon order of a Court of Record after need thereof has been shown. The county medical examiner may delegate his duties in a particular case to one of his assistant county medical examiners, or may perform the same jointly with him.

For each investigation under this Article, including the making of the required reports, the county medical examiner shall receive a fee to be fixed by the board of county commissioners, after consultation with the committee, which shall

be paid by the county for which he is appointed.

G. S. 130-300. When Autopsies and other Pathological Examinations to be Performed.—If, in the opinion of the medical examiner of the county wherein the body or anatomical material is first found under any of the circumstances set forth in G. S. 130-298, it is advisable and in the public interest that an autopsy or other pathologic study be made, or if an autopsy or other pathologic study is requested by the Superior Court Solicitor or by any Superior Court Judge, having authority in the judicial district wherein such county lies, such autopsy or pathological study shall be made by the District Pathologist or by a competent pathologist designated by the Chairman of the Committee for such purpose.

In any case of death under circumstances set forth in G. S. 130-298 where a body shall be buried without a medical examination being made as specified in G. S. 130-299, or in any case where a body shall be cremated except in compliance with the provisions of this Act, G. S. 130-301 in particular, it shall be the duty of the medical examiner of the county in which the body is buried, was cremated, or the remains were found, upon being advised of such facts, to notify the Superior Court Solicitor who shall communicate the same to any Resident or Assigned Judge of the Superior Court, and such judge may order that the body or the remains be exhumed and an examination or autopsy performed thereon by the District Pathologist, or by a pathologist appointed by the Chairman of the Committee. The pertinent facts disclosed by the examination or autopsy shall be communicated to the Superior Court Judge who ordered it, for such action thereon as he, or the court of which he is judge, deems proper. A copy of the report of the examination or autopsy findings and interpretations shall be filed with the Chairman of the Committee and the Superior Court Solicitor: Provided that a copy of said report shall be furnished to any other interested person upon order of a Court of Record after need thereof has been shown.

G. S. 130-301. When Medical Examiner's Permission Necessary before Embalming, Burial and Cremation.—(a) In any case where it is the duty of the county medical examiner to view the body and investigate the death of a deceased person as herein provided, it shall be unlawful to embalm the said body until the written permission of the county medical examiner has first been obtained, and such county medical examiner shall make the certificate of death required for a burial permit, stating thereon the name of the disease causing death; or, if from external causes, (1) the means of death, and (2) whether (probably) accidental, suicidal, homicidal; and shall, in any case, furnish such information as may be required by the State Registrar in order properly to classify the death.

(b) It shall be unlawful to embalm or to bury a dead body, or to issue a burial permit, when any

fact within the knowledge of, or brought to the attention of, the embalmer, the undertaker, or the local registrar charged with the issuance of burial permits, is sufficient to arouse suspicion of crime in connection with the death of the deceased, until the written permission of the county medical examiner has first been obtained.

(c) No permit for cremation of a body shall be issued by the local registrar charged therewith and no cremation of a body shall be carried out until the county medical examiner shall have certified in writing that he has made inquiry into the cause and manner of death and is of the opinion that no further examination concerning the same is necessary.

(d) A fee to be fixed by the board of county commissioners, after consultation with the committee shall be paid the county medical examiner for permits provided for in this Section by the person making application therefor, and copies of such permits shall be promptly filed by the county medical examiner in the office of the Chairman of the Committee.

Any person violating any of the provisions of this Section shall be guilty of a misdemeanor, and upon conviction shall be fined not less than one hundred dollars (\$100.00) nor more than five hundred dollars (\$500.00).

G. S. 130-302. Nothing in this Act shall be construed as precluding a coroner from holding inquests or taking other steps as provided in G.S. 152-7 as hereby amended. All postmortem examinations under this Act shall be held and done under and subject to the control and direction of the Chairman of the Committee, who is hereby also vested with primary control over the remains, subject to the provisions of this Act.

G. S. 130-303. Election to adopt Chapter.—This Act shall not become effective until after its adoption by resolution of the board of county commissioners of the county desiring to come within the purview of this Act; any county having elected to come within the purview of this Act may, at the end of any fiscal year of such county, by appropriate resolution exclude itself from the provisions of this Act.

G. S. 130-304. Partial Invalidity.—If any Section or portion of this Act shall for any reason be held invalid, such invalidity shall not affect the

remainder, it being the legislative intent that such remaining portions of this Act shall continue in full force and effect with the invalid part stricken therefrom."

Sec. 2. Paragraphs 6 and 7 of G. S. 152-7 are hereby repealed, and in lieu thereof the following are substituted:

"6. Immediately upon information of the death of a person within his county under such circumstances as, in his opinion, call for investigation, the coroner shall notify the Solicitor of the Superior Court and the county medical examiner, who in turn shall notify the Chairman of the Committee, and thereafter, the coroner shall make such additional investigation as the Solicitor may direct.

"7. If an inquest or preliminary hearing be ordered, to arrange for the examination thereof of any and all witnesses including those who may be offered by the Chairman of the Committee on Postmortem Medicolegal Examinations or the county medical examiner."

Section 3. G. S. 130-23 is hereby amended by striking out the words "to make the medicolegal postmortem examinations for the coroner's inquests", as to such county or counties as elect to come within the purview of this Act.

Sec. 4. G. S. 130-80 is hereby repealed as to such county or counties as elect to come within, and by appropriate resolution place themselves within the purview of this Act so long as such county or counties shall remain hereunder.

Sec. 5. G. S. 90-213 is hereby amended by adding thereto the following words: "Provided, further, that nothing in this Article shall restrict or limit the provisions of Article 30 of the General Statutes entitled 'Postmortem Medicolegal Examinations'."

Sec. 6: Sections 2 and 3 of Chapter 252 of the Public-Local Laws, Session 1941, are hereby repealed.

Sec. 7. All other laws and clauses of laws, inconsistent with the provisions of this Act, are hereby repealed to the extent of such inconsistency.

Sec. 8. This Act shall be in full force and effect from and after January 1, 1956.

In the General Assembly read three times and ratified, this the 13th day of May, 1955.

Lesions in the Back and Lower Extremities Which May Simulate a Ruptured Intervertebral Disk

J. LEONARD GOLDNER, M.D.

DURHAM

There is evidence to substantiate the belief that most low back pain accompanied by lower extremity radiation is caused by a pathologic condition in the intervertebral disk complex. This situation may give the physician a false sense of security. Many patients with a pain syndrome suggesting a ruptured disk have received long periods of conservative or even operative treatment without relief. They are frequently called "psycho-neurotic," because a ruptured disk was suspected but could not be found. In this large group, a careful history, detailed physical examination, and roentgen examination have revealed numerous other causes for low back and extremity pain.

It is the purpose of this paper to emphasize the presence of back and lower extremity syndromes other than ruptured disk.

Structural Deformities of the Vertebral Column

A variation in normal bone architecture may result in back pain. The mechanism of pain when such a condition exists is thought to be the result of stimulation of the deep supporting structures, such as ligaments, synovium, nerve roots, and even bone. The exact pain-producing mechanism cannot always be easily explained.

Neural arch defect (pre-spondylolisthesis)

This lesion is located most frequently in the fourth or fifth lumbar vertebra, but is occasionally present in the upper lumbar region. Because of the defect, excessive movement occurs in the posterior elements of the involved vertebra, resulting in pressure on the nerve roots as they run from the mid-line laterally through the vertebral foramina. Symptoms of a neural arch defect may be described as a deep, dull aching pain across the entire lower part of the back, with radiation into the buttocks and down the posterior aspect of one or both thighs (fig. 1). Usually the pain does not go below the knees, and does not cause

dermatome radiation. There may be localized pain to pressure in the mid-line over the lumbosacral joint, and discomfort in the same region when the back is extended. The neurologic examination is usually normal. Oblique roentgenograms are usually necessary to confirm the diagnosis.

A low back support used in conjunction with good postural habits, a firm mattress, limited exercise, and avoidance of heavy lifting are usually sufficient to control the discomfort. If symptoms persist or if the patient desires to eliminate the back support, decompression of the nerve roots and a vertebral fusion are indicated.

Spondylolisthesis

Symptoms in spondylolisthesis usually result from compression of the nerve roots and soft tissue by the mobile posterior elements of the vertebral column, even though the roentgenogram will show the vertebral body to be displaced forward. There is very little evidence to prove that vertebral bodies are unstable or that they "slip" with advancing age. Trauma may cause aggravation of an existing displacement of a vertebral body. When spondylolisthesis is symptomatic, the pain may vary in severity and may radiate into the extremities. It may alternate from one extremity to the other, or it may be present in only one extremity, similar to the pain associated with a herniated nucleus pulposus.

The diagnosis is usually suggested by the appearance of the patient. The back is usually "short-coupled," the pelvic brim seems high, the extremities are long in comparison with the remainder of the body, and the rib cage is close to the pelvic brim. The lumbar area may be flat, and there may be a small amount of hair or a dimple in the mid-line. The trunk is flexed primarily at the hip joints, and extension of the lumbosacral spine is limited and painful. Digital palpation in the mid-line may reveal the prominent spinous process of the involved vertebra. Manipulation of, or pressure on, this bone causes pain.

If spondylolisthesis is suspected, oblique

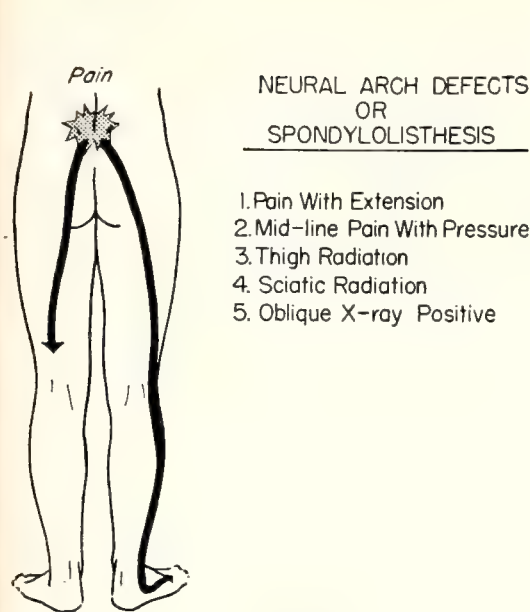


Figure 1

views should be included in the roentgen examination. The lateral view should be centered over the fifth lumbar vertebra in order to determine forward displacement of the vertebral body. A myelogram, if done, may show no evidence of a filling defect in the sleeve at the base of the nerve root, because the pressure may be at the foramen, or the nerve root may be swollen. If radiating pain exists, the nerve roots should be decompressed and fusion of the posterior elements of the vertebral column done. Herniation of the intervertebral disk usually does not accompany this skeletal abnormality.

Degenerative arthritis of the spine

Narrowing of a nerve root foramen from the formation of new bone may result in pain radiating into a lower extremity with dermatome distribution. This syndrome is usually associated with low back pain, and may be difficult to distinguish from that of a ruptured disk. Degeneration of the intervertebral disk with subsequent reactive fibrosis and formation of bone may cause a ridge along the posterior aspect of the vertebral body, causing irritation of the joint, ligaments, and nerve roots. Roentgen examination may show narrowing of the interspace with formation of a spur, indicating encroachment by new bone on the nerve roots and ligaments. A myelogram or discogram may aid in the diagnosis. Subluxation of the

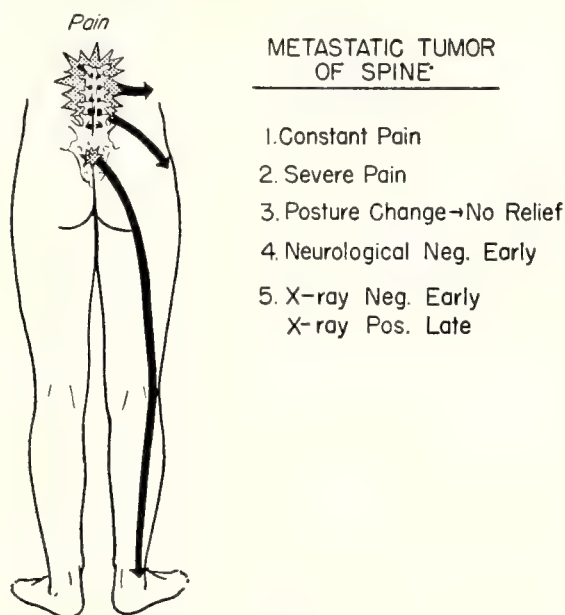


Figure 2

articular facets secondary to degeneration of the disk and narrowing of the interspace may result in pressure on the nerve root when the patient is in a standing position.

Ordinarily, a low back support, limitation of bending and lifting, and correction of posture, along with the use of a firm mattress, will allow edema of the nerve root to subside and the root to become accustomed to the change in the size of the foramen. On rare occasions wide decompression of the nerve root may be indicated. If subluxation of the facets is present and pain persists despite all conservative treatment, vertebral fusion should be considered.

Tumors of the Skeleton, Spinal Cord, and Cauda Equina

Back and lower extremity pain may be the presenting symptoms of the patient who has a primary or metastatic tumor in the spine, spinal cord, pelvis, or femur.

Metastatic or primary tumors of the vertebra

A tumor of the lower lumbar vertebra may first become evident when it is associated with trauma such as sneezing, lifting, bending, or swinging. The resulting symptoms of back pain and sciatica are misleading (fig. 2). Physical signs may indicate pressure on the nerve root, but the pain is usually more persistent and more severe at rest than that associated with the ordinary ruptured disk.

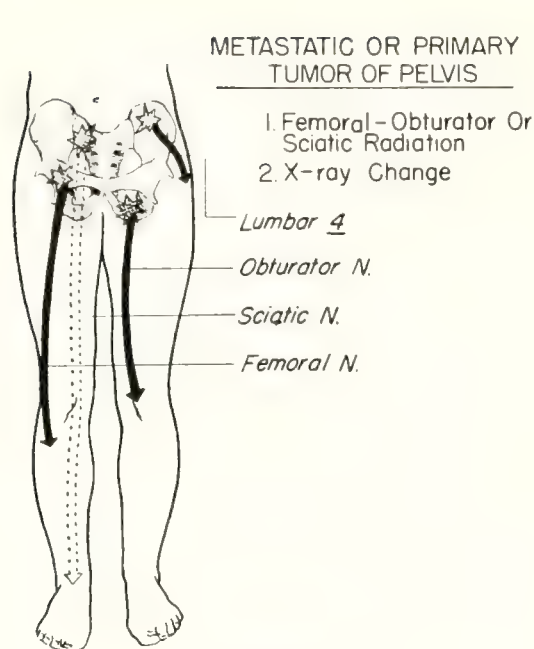


Figure 3

Metastatic or primary tumor of the pelvis

A tumor of the pelvis may involve the lumbosacral plexus or peripheral nerves and cause radiating pain along the sciatic, femoral, or obturator nerves (fig. 3). Severe atrophy of the extremity may be present. The pain may be mild at first, but usually becomes severe and is not relieved, day or night, by change in position or by local injection. The reflexes are not altered, but there may be a sensory disturbance which does not follow a specific dermatome. Back motion is usually not limited. Pelvic or rectal examination may indicate the presence of a painful mass or merely pain when the skeleton is palpated. Roentgen examination of this region may show an area of destruction, although loss of bone density may not occur until late. A careful preliminary survey may save extensive diagnostic studies.

Metastatic or primary tumor of the femur

A tumor in the trochanteric region or shaft of the femur may cause radiating pain either anteriorly or posteriorly along the thigh, which may extend below the knee. There may be pain produced by leg-raising tests, atrophy of the extremity, and vague sensory change. The absence of back pain and of reflex change, along with the unrelenting persistence of the pain, will suggest the necessity for roentgen examination of the femur.

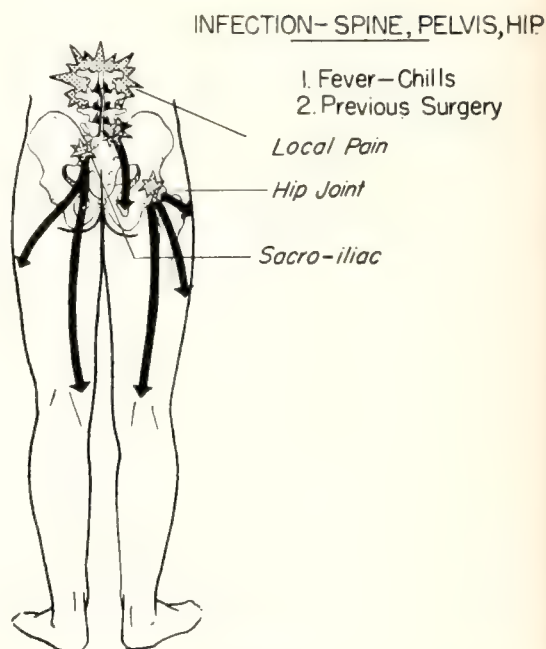


Figure 4

Benign bone lesions in the pelvis and lower extremities

A benign bone lesion which may produce symptoms somewhat similar to those of a ruptured disk is an osteoid osteoma. This lesion, if present in the upper femur, may cause a deep, aching discomfort associated with radiating pain along the posterior or anterior aspect of the thigh. Backache will usually be absent, unless it is secondary to gait and postural change or is caused by fatigue. The history will indicate intermittent episodes of dull, aching pain which is usually present at night. Aspirin may give relief for several hours. There will be no abnormal neurologic signs, no motor weakness, and ordinarily the leg-raising tests will be negative. Localized pressure over the affected area of the femur will cause pain. The patient may have sensory change which does not follow the usual dermatome pattern seen with nerve root involvement.

There is no improvement with the usual therapy prescribed for a ruptured disk. The patients usually have tried many kinds of treatment with no relief. Roentgen examination will show the area of increased density in bone usually at the junction of the upper and middle third of the femur. Excision of the lesion results in immediate and complete relief of pain.

Tumor of the cauda equina

This lesion may involve only a single nerve root, or may be more extensive. The absence of back pain is usually conspicuous. The patient may have difficulty describing his symptoms and complain only of pain in the calf or thigh. This pain usually gets worse, and may have persisted for years. Reflex changes usually occur, and sensory disturbance may be present. Atrophy of muscles and motor weakness eventually occur. Elevation of the spinal fluid protein or evidence of a block on the myelogram will suggest the diagnosis. When a large tumor is present, the anterior and lateral roentgenogram may show erosion and widening of the foramina between the laminal arches.

Infection

Pyogenic infection

Pyogenic infection involving the lower lumbar segments of the spine can simulate herniation of the nucleus pulposus (fig. 4).

This infection may result from local trauma which occurs with repeated lumbar punctures, or it may be secondary to hematogenous osteomyelitis. The history of repeated urologic instrumentation or previous operations about the pelvic and lumbar regions should suggest the possibility of a low grade localized infection of the intervertebral disk and possibly osteomyelitis of a vertebral body. Pain may be gradual in onset and associated with backache and sciatica. The roentgenogram may show no bone change for several weeks after the onset of symptoms, until areas of subchondral destruction have occurred. The intervertebral disk then narrows and new bone forms at the interspace. Immobilization of the back and chemotherapy usually alleviate symptoms.

Granulomatous infection

Tuberculosis or fungus infection invades the vertebral body, and a destructive lesion may result in wedging of the vertebra anteriorly, with bulging posteriorly. A soft tissue abscess and granulation tissue can cause increased pressure about the nerve roots, with low back pain radiating to the lower extremities. The history of onset and the presence of fever, chills, and night sweats suggest infection rather than rupture of the nucleus pulposus.

Infection of the sacroiliac joint

Specific infection in this joint, whether it be pyogenic or granulomatous, may cause a rigid back and sciatic radiation. Localization of pain, the presence of fever, and the nature of the limp brings attention to this joint. Since roentgen changes may not appear for several weeks, repeated observation is necessary.

"Virus neuritis"

Some patients may complain of diffuse, severe pain in a lower extremity. This may be gradual in onset and of several days' or weeks' duration. Paresthesia has usually been present. The leg-raising tests are positive, and there is spotty, diffuse motor weakness, accompanied by hyperesthesia instead of diminished sensation. Roentgen examination of the spine usually shows no change. Physical findings indicate a more general involvement than that seen when one specific nerve root is affected. The myelogram, when done, will show no filling defect or a mechanical block. There is usually no elevation of the spinal fluid protein.

This condition is described as a "virus neuronitis," although specific proof of the diagnosis, except the course of the syndrome, is lacking (fig. 5). Large daily doses of vitamin B-12 may help.

Herpes zoster, which also may suggest a disk syndrome early in its course, will frequently begin with pain and hyperesthesia in the extremity, and suggest pressure on the nerve root until the skin eruption appears.

Hip Joint Pathology

The nerve supply to the hip joints originates in the lumbosacral portion of the cauda equina and consists of the obturator nerve, which arises from the second, third and fourth lumbar vertebrae; the nerve to the quadratus femoris, which arises from the fourth and fifth lumbar vertebrae and the first sacral vertebra; and the articular branches from the femoral nerve which come from the second, third and fourth lumbar vertebrae. Hip joint pain may be posterior, lateral, anterior, or occur along the medial thigh (fig. 6). Degenerative arthritis of the hip joint, an impacted fracture of the neck of the femur, disease of the synovium, or infection in or about the hip joint, may cause pain and radiation which might be confused with that resulting from rupture of an inter-

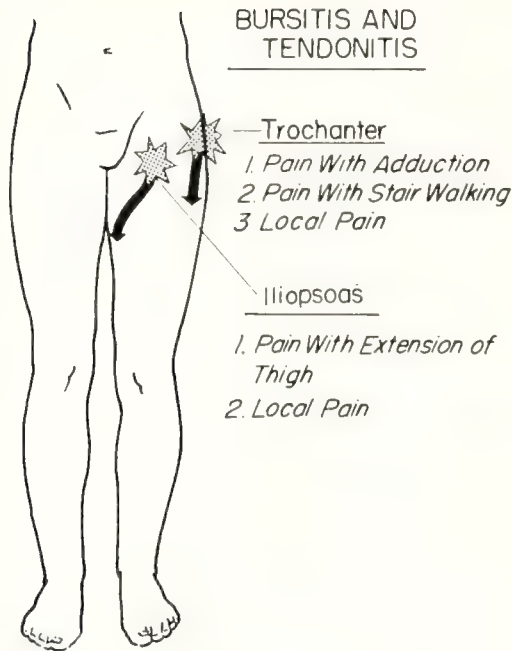


Figure 5

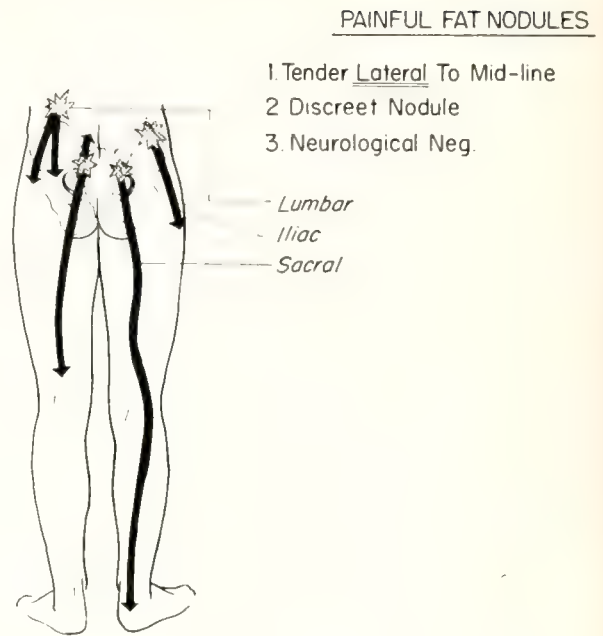


Figure 6

vertebral disk. Ordinarily, pain from the hip joint is felt at the hip or knee, and does not radiate below the knee joint. Roentgen examination of the hip will usually show narrowing, sclerosis, and changes in the femoral head and acetabulum. Observation of the gait and a test for rotation of the hip joint will indicate whether the pain is coming from the back or from the hip.

Bursitis and Tendonitis

Trochanteric bursitis

An inflammatory process is the trochanteric bursa may be accompanied by "hip pain" along the lateral aspect of the thigh, limited motion of the hip joint, a limp, and flexion of the thigh for relief of pain. Rotation of the hip joint may be painful, suggesting intra-articular disease, and the leg-raising test may suggest pressure on the nerve root because of pain resulting from tension on the bulging bursa. Digital palpation around the trochanter causes pain and will suggest the diagnosis. Injection of a local anesthetic and hydrocortisone acetate usually allows the inflammatory process to subside (fig. 7).

Iliopsoas bursitis

When the iliopsoas bursa is inflamed, pain will be present in the groin and radiate down

the anterior aspect of the thigh, suggesting the possibility of nerve root pressure around the third and fourth lumbar vertebrae. The patient holds the extremity in flexion, and walking is painful. Rotation of the hip joint will be limited and extension of the spine will cause pain in the groin because of tension on the iliopsoas bursa. Flexion of the spine and lateral bending are usually not limited. Fluid may be obtained by aspiration of the bursa, and relief of pain may occur after injection with a local anesthetic and with hydrocortisone acetate.

Marie-Strumpell Arthritis

Radiation of pain into the extremities, as well as back pain, is a common feature of this syndrome. Pain in the back may be mild, and the presenting complaint may be sciatica. Pain in the extremity may be aggravated by attempted flexion of the trunk. Although not common, leg-raising tests may be positive and sensory change may be present. Reflexes are ordinarily not altered. Every patient with pain radiating to the lower extremities should have adequate roentgen examination, including the anterior-posterior and oblique views of the sacroiliac joints. These, in conjunction with an adequate history, will usually prevent the error of calling Marie-Strumpell arthritis a ruptured

INFECTIOUS NEURITIS

1. Herpes Zoster
2. Other Virus Infections

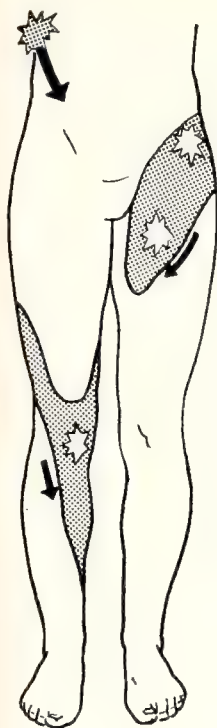


Figure 7

HIP JOINT PATHOLOGY

1. Rotation Of Thigh Limited
2. "Hip Limp"
3. Neurological Neg.
4. X-ray — Positive

Lat. Femoral Cut.

Obturator N.

Sciatic N.

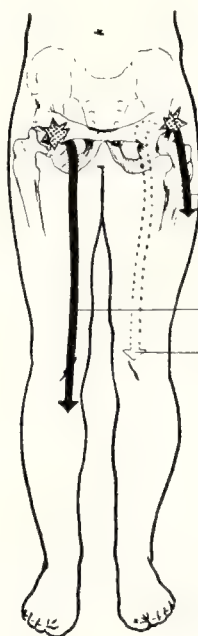


Figure 8

disk. When these bone and soft tissue abnormalities are present, constriction of a nerve root at the foramen, or edema of the lumbosacral plexus secondary to soft tissue reaction may account for sciatica or radiation of pain into the various segments of the extremity. Roentgen therapy, physical therapy, mild sedation, and back support frequently give satisfactory relief.

Painful Fat Nodules

These masses occur alone or in conjunction with the painful fat syndrome known as adiposis dolorosa, or Dercum's disease. There may be painful fat nodules at many locations about the back or buttocks. They may be found over the sacrum or ilium, causing pain radiating into the thigh and leg, simulating sciatica. Back pain may be present, and may be aggravated by forward flexion or direct pressure. Flexion is painful because of tension of the lumbodorsal fascia on the painful fat. Digital palpation will indicate the tender area to be lateral to the mid-line, readily palpable, and painful. Radiation of pain and even occasional sensory change are thought to be due to overflow through the posterior cutaneous nerves.

In the acute stage, the differential diagno-

sis is readily made by injecting a local anesthetic into the painful area. Immediately following an effective injection, a full range of motion is usually possible without pain. Pain may recur, however, and require removal of the painful fat nodule, which is frequently attached intimately to the periosteum over the sacrum or ilium. Because pressure irritates the nodule, the symptoms are aggravated by application of a low back support.

*Segmental Arterial Occlusion;**Pelvic Thrombophlebitis*

Pain in the buttock and thigh may be associated with exercise. Segmental arterial occlusion may cause pain which originates with exercise, and is relieved almost immediately by rest. The femoral artery pulse may be diminished or absent. The extremity may show no other specific signs of arterial insufficiency. Aortograms or arteriograms may be necessary in order to arrive at the final diagnosis.

The history of previous thrombophlebitis or of previous pelvic surgery suggests the possibility of old pelvic thrombophlebitis which has been unrecognized. The pain may be aggravated by activity and relieved by rest

The neurologic examination usually shows no motor weakness, sensory change, or alteration of reflexes. Arteriogram and venogram may occasionally be necessary for the differential diagnosis.

Miscellaneous

"Obturator neuritis"

Pain along the inner aspect of the thigh may be associated with osteitis pubis, which in turn may result from trauma, degeneration, or prostatic surgery. This syndrome may also be the result of local or generalized arteriosclerosis, nutritional deficiencies, or metastatic lesions of the spine or pubic region. The pain may radiate into one or both adductor areas and extend down to the region of the knee. Hyperesthesia is usually present along the inner aspect of the thigh, and there is pain with attempted abduction and external rotation. The differential diagnosis may be made by obturator nerve block with a local anesthetic. If the condition is of local origin, the symptoms frequently disappear or are lessened permanently. If the neuritis is secondary to soft tissue tumor or other conditions, the nerve block is of value only for a few hours. Occasionally the nerve can be sectioned for relief of pain (fig. 9).

Meralgia paresthetica (lateral femoral cutaneous nerve)

Pain resulting from involvement of this sensory nerve occurs along the anterior aspect of the thigh. Hyperesthesia is present, and is aggravated by clothing or other external pressure. The etiology may be local external constriction at the level of the anterior superior iliac spine, trauma in the same region, or nutritional deficiency. This particular pain is occasionally seen in diabetes and trichinosis. A diagnostic nerve block is of value. Surgical excision of a segment of the nerve will bring relief, but will also result in an area of diminished sensation.

Neurofibromatosis

The presence of a neurofibroma on a peripheral nerve may produce radiating pain which might be confused with that caused by pressure on the nerve root. There may be paresthesia on the dorsum or the plantar surface of the foot, depending on the location of the tumor. A lesion high on the sciatic nerve will make differential diagnosis difficult. The absence of limited back motion and back pain will suggest the necessity for careful

"MERALGIA PARESTHETICA" & "OBTURATOR NEURITIS"

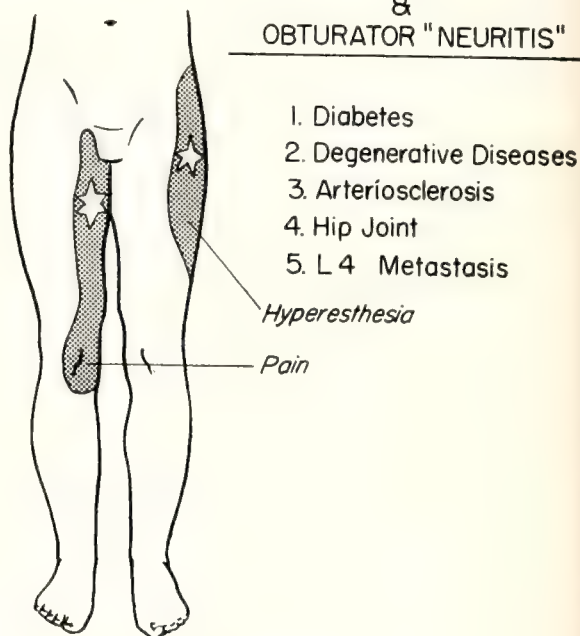


Figure 9

palpation of the peripheral nerves in the extremity.

Plantar digital nerve fibrosis

The complaint of numbness in the third and fourth toes and pain on the dorsum and plantar surface of the foot suggests the possibility of nerve root pressure in the back. A swelling of the digital nerve between the third and fourth metatarsal heads will account for this "plantar neuroma syndrome," and will cause excruciating cramping pain in the foot and secondary discomfort in the calf. The diagnosis may be confirmed by localized pain following digital pressure between the third and fourth metatarsal heads. Occasionally diminished sensation will be present in the toes, but this is not usual. Excision of the involved digital nerve relieves the symptoms completely.

Nerve Trauma

In conjunction with acute traumatic extension or flexion of the spine, there may be a subluxation of the articular facets with direct contusion of nerve roots. The early symptoms and signs may simulate a rupture of the intervertebral disk, although the distribution of the pain may be more diffuse. The leg-raising test may be positive, and reflex change may occur. A careful history, a few days of observation, and

a negative myelogram will aid in differential diagnosis. Direct trauma to the sciatic nerve following a forcible stretch of the extremities, a hard fall in the sitting position, or a direct blow will give diffuse discomfort along the thigh and calf, and may involve the hamstring and calf muscles, as well as the foot dorsiflexors. Localized palpation over the buttock will frequently reproduce the pain.

A stretch injury of the lumbosacral

plexus which occasionally occurs with severe trauma may result in motor weakness and sensory change which is much more generalized than that usually seen with pressure on an isolated nerve root.

Conclusion

There are numerous causes for back and lower extremity pain which must be differentiated from the common syndrome of nerve root compression caused by a ruptured disk.

Congenital Adrenal Hyperplasia

WESTON M. KELSEY, M.D.

WINSTON-SALEM

Congenital adrenal hyperplasia is not a common disease, although it is being recognized more and more frequently. With the wider availability of the 17-ketosteroid determination, more cases are being recognized in infancy. Two to 3 cases reach the pediatric service of the North Carolina Baptist Hospital a year. It is quite likely that many more cases are undiscovered before autopsy. Two of our series fall into this group.

Since congenital adrenal hyperplasia is a hereditary disease, it should be more common in an area of inbreeding. Even though the condition is rare, so much can be done for these children that it is quite important to recognize them.

Diagnosis

The diagnosis is actually quite simple. The patients present two clinical pictures in infancy: (1) the androgenic effects, and (2) the salt-losing syndrome—usually manifested as unexplained vascular collapse. In considering the clinical picture, one should divide the infants according to sex. Since the androgenic effects are present *in utero* and affect the normal development of the genitourinary tract, all the females present the picture of pseudohermaphroditism. The abnormalities of the external genitalia are usually of four varieties (see fig. 1 from Wilkins). In our series of cases 3 were

type A, 2 cases type B, and 1 case type C. Figures 2 to 7 illustrate these types. Thus any newborn who has an enlarged phallus and an abnormal perineal sinus should be suspected of having congenital adrenal hyperplasia. If in addition he has periods of unexplained vascular collapse, the diagnosis is almost certain.

The salt-losing syndrome has three characteristics which should suggest the condition. First is marked dehydration without significant vomiting, diarrhea, or heat stress. Second is the presence of a low serum bicarbonate and low serum chloride. This is confirmed by the finding of a low serum sodium and a high serum potassium. The third is the dramatic response to sodium-containing solutions given intravenously. The salt-losing syndrome is most common in the first year of life, and usually occurs in the first six weeks. Of our 7 patients with this syndrome, 6 manifested it before the fortieth day of life. As the children get older, they are more likely to suffer collapse under acute stress.

Since the males are being exposed to an excessive amount of isosexual hormone, one would expect them to manifest isosexual precocity and/or collapse. The difficulty in this group is that the males rarely show clear-cut enlargement of the phallus or other evidences of precocity until they are older. The earliest definite genital enlargement in males which we encountered was at the age of 2½ years. All belonging to this group either died an unexplained

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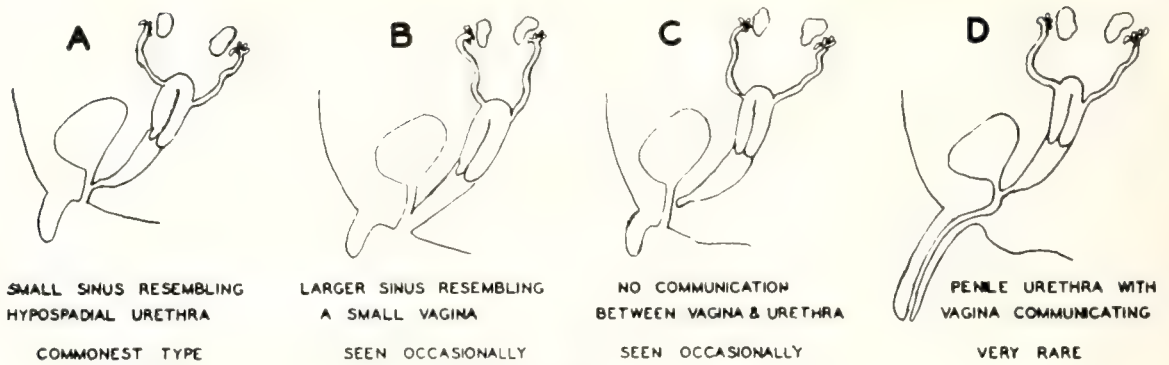


Figure 1



Figure 2. Type A.

death and the diagnosis was established at autopsy, or the diagnosis was made on a chemical basis. Any male undergoing unexplained vascular collapse in the first year of life certainly should be suspected of potential adrenal hyperplasia.

Heredity

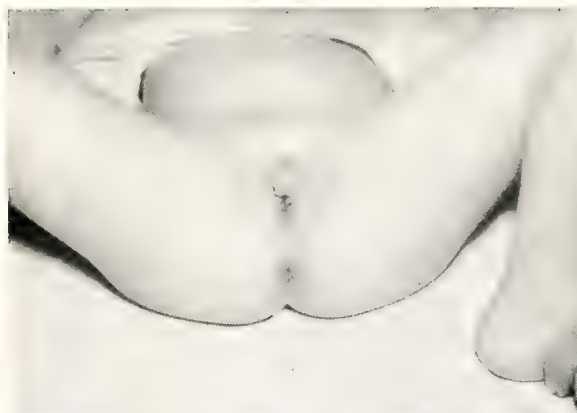
There seems to be no question that this condition is due to a recessive gene. The work of Childs and his co-workers⁽¹⁾ at Johns Hopkins suggests strongly that these

patients have a constant heredity pattern. Their work suggests the existence of a gene for this condition without the salt-losing effects and either another gene or a different genetic mechanism for those patients with both congenital adrenal hyperplasia and collapse. Our very limited data agree with this concept. Proven cases existed in the immediate families of 2 of our patients and the condition was strongly suspected in the families of 3 others. Within families the disease presented a single pattern—that is, all the cases in one family were marked by collapse or all were without collapse. Thus a history of unexplained death in a sibling or a sibling with abnormal genitalia should make one suspect the diagnosis in the patient.

The bone age is of considerable diagnostic value in children more than 2 years of age. In all these children, regardless of the development of the phallus or the height age, there was such a marked increase in the bone age that it could not have been missed. The height age has been of considerable help, though it can be misleading, as will be shown by one patient to be discussed later. Since the androgens increase the bone growth in the first decade, up to about 9 years of age, these children are taller than average. After that they are relatively dwarfed, because the androgens close the epiphyses prematurely. The only problem comes where the genetic pattern of growth falls in a low percentile. The height age of one child who had very small parents was in the fiftieth percentile, even though her bone age was twice normal. Probably her height age was increased beyond her expected percentile. Certainly if a patient is suspected of having Addisonian



Figure 3 (left). Type A.



Figures 4 and 5 (right). Type B.

symptoms, is tall for his age, and grows at an excessive rate, one should suspect adrenal hyperplasia.

The key to the diagnosis is in the determination of the urinary 17-ketosteroids. The deviation from normal in these patients is so large that a minor error in urine collection will rarely invalidate the re-



Figure 6. Type B.

sults. The value for the 24-hour excretion of 17-ketosteroids varies somewhat with the method used. None of our normal infants have had values greater than 0.5 mg. per 24 hours, and usually they are less than 0.2 mg. In contrast, our lowest ketosteroid value in the infants with congenital adrenal hyperplasia was 2.7 mg. In one adult the value was 57, and in our oldest child, 11 years old, it was 49. In only one child, a 20 day old infant, was the value less than 6 mg.

In order to differentiate this situation from the elevated ketosteroids seen in certain patients with tumors, cortisone is given intramuscularly. In general, with the smaller children 25 mg. of cortisone given daily for seven days has reduced the ketosteroids so markedly that the diagnosis of adrenal hyperplasia was obvious. In a girl with 49 mg. the value dropped to 7. In a 9 year old it dropped from 18 to 5 mg. The smallest drop was in an 8 year old girl who had an initial value of 6 mg. which dropped

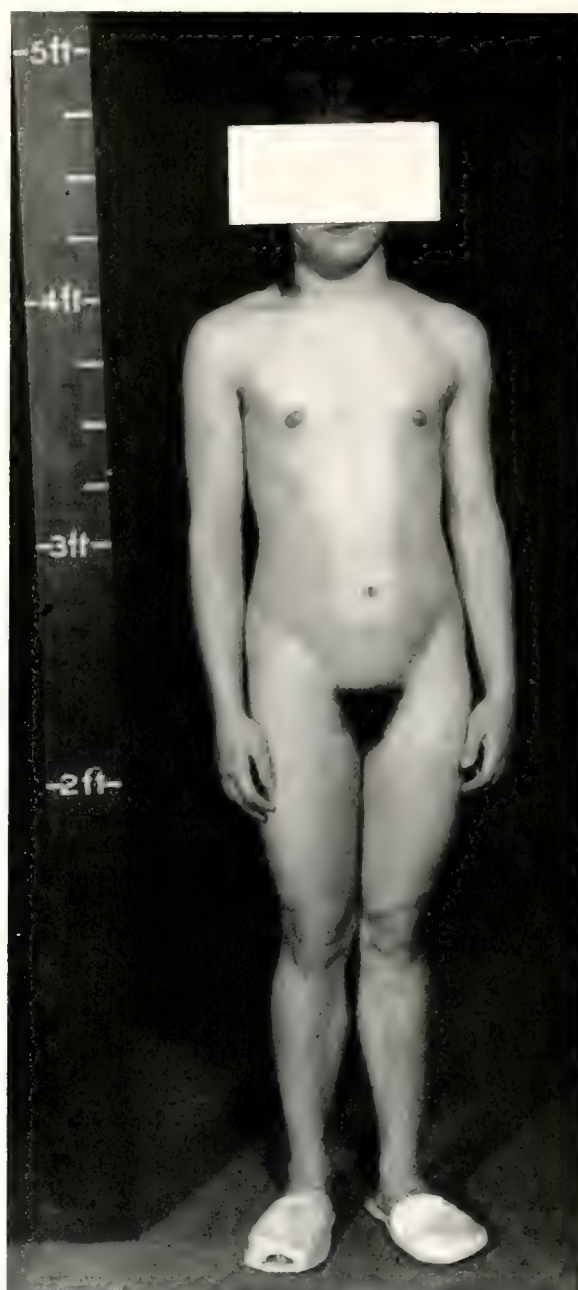


Figure 7. Type B.

to 2. Similar values had been obtained in this patient elsewhere. Thus the finding of elevated urinary ketosteroids which drop during cortisone therapy makes the diagnosis certain. In tumors there will be no significant drop.

Etiology

The etiology of the various components of this syndrome is now being elucidated.

It certainly would seem at the moment that an abnormality in the synthesis of steroids in the adrenal cortex inhibits the formation of hydrocortisone. Evidence for this is the demonstration in the urine of excessive amounts of the breakdown products of 17 hydroxyprogesterone, which is a precursor of hydrocortisone⁽²⁾. The second evidence is the finding of a markedly decreased level of hydrocortisone in the plasma⁽³⁾. Because of the deficient production of hydrocortisone, the pituitary gland is not inhibited and continues to produce adrenocorticotrophic hormone. The evidence for this is twofold. Hydrocortisone or cortisone regularly decreases the symptomatology—a well recognized fact. Secondly, excess ACTH has been found in the serum of untreated patients⁽⁴⁾.

The mechanism leading to vascular collapse is much less clear. There are two possibilities. One is the presence of an antagonist to the salt and water hormone. This antagonist might be an abnormal steroid formed along with some of the other abnormal steroids found in this condition. Though one worker has described a formaldehydogenic steroid which has an anti-salt and water effect, to my knowledge this has not been confirmed. The second possibility, an abnormal or deficient synthesis of aldosterone, is not substantiated as yet. There is evidence that cortisone decreases the frequency with which the patient goes into a state of collapse. This concept also is not universally accepted. Many patients may go a long time spontaneously without collapse, so that it will take some time before one can be certain that the cortisone has decreased the number and severity of the attacks. If this should prove to be the case, it would be further evidence that an aldosterone antagonist is being formed.

Treatment

It becomes obvious, therefore, that cortisone is the main form of treatment. By decreasing the output of ACTH it reduces the amount of hydrocortisone precursors, decreases the androgenic effects, permits normal development of menstruation, and may decrease the frequency of vascular collapse in patients who have that form of the condition.

The management of patients with adrenal hyperplasia presents two separate problems: (1) the treatment and prevention of

vascular collapse; (2) the prevention of androgenic effects.

Management of collapse

Patients in acute collapse must be treated as emergencies, since they can die suddenly. They should promptly receive solutions containing sodium. These should be continued until the patient has definitely recovered from collapse. The amount to be given cannot be specified, but the dosage certainly should be kept up until the desoxycorticosterone acetate has time to take effect. If there is any question at all concerning the vascular status, a sodium-containing solution should be continued. DOCA should be given promptly and in large amounts. The biggest error we have made in the acute stage has been in using too small amounts. We have found that from 4 to 5 mg. per day given intramuscularly during the acute phase is necessary to maintain salt and water balance. This dosage is continued until the serum sodium rises above 130, at which time the DOCA is gradually decreased. There is no good evidence that cortisone is life-saving in this phase of illness, though it may be given. Its use will delay the diagnosis since, by decreasing the ketosteroids, it may cause the first determination to fall within normal limits. This has happened to us on one occasion.

There are three general theories concerning the prevention of adrenal collapse. Jailer⁽⁵⁾ feels that the cortisone is efficient in preventing the collapse state and is willing to try these patients without DOCA. Wilkins⁽⁶⁾ feels that all of the patients should be maintained on DOCA. It can be given either in pellet form or as the trimethyl acetate ester. Pellets have the advantage of providing long term protection. Against them is the great difficulty in estimating the dosage to be inserted. A long term hospitalization is required to determine accurately the amount. Another disadvantage is that the toxic effects apparently can be more serious in infants than in older people, and can cause hypertension and cardiac failure.

Thorn and his co-workers⁽⁷⁾ have described the use of the trimethyl acetate ester of DOCA. This is a micro-crystalline suspension which lasts about a month. Its advantages are that it can be given once a month and the dosage can be determined

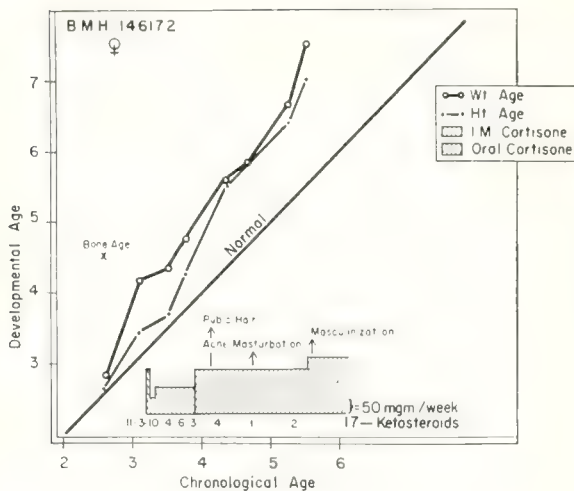


Figure 8

without a long hospitalization. The amount to be used is determined by the patient's weight gain, changes in blood pressure, maintenance of a normal serum sodium and potassium, and general clinical status. In our experience this method has been very successful.

Regardless of which method is used, the patient should receive extra sodium chloride in his diet. Fortunately most children like salt. We have added from 2 to 6 Gm. of sodium chloride a day to their regular diet.

Control of androgenic effects

There are numerous reasons for attempting to control the androgenic effects. Three problems are common to the patients, regardless of sex. The psychiatric problems associated with precocious puberty or masculinization in the female are most difficult to manage. Every effort should be made to prevent the development of hirsutism in either sex. The problem of masturbation and sexual awareness has been the most difficult problem for the parents. In one case it has been so severe that the Welfare Department has agreed to pay for the medication. These patients masturbate constantly and develop a marked sexual interest at 5 or 6 years of age. There is good evidence that the terminal dwarfism can be ameliorated. Of particular interest in the female patients is the prevention of irreversible masculinity. Once the voice has changed and hirsutism is established, complete reversal cannot be obtained. Certainly the musculature never returns to a typi-

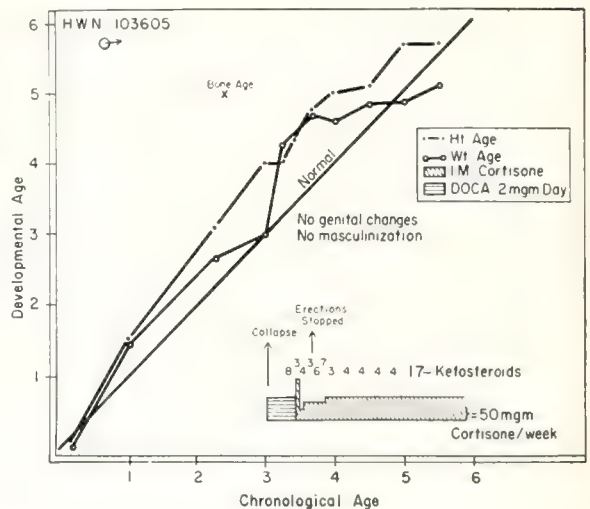


Figure 9

cally feminine appearance. As the children grow older, adequate therapy can cause the appearance of a normal menstrual pattern and possibly pregnancy. The only good reason for preventing the androgenic effects in the male other than those mentioned before is to ensure the normal development of the testes in the face of the high output of androgens by the adrenal gland.

The amount of cortisone and the route by which it is administered must be individualized. It can be given orally, but the effect is not so constant and the dosage is considerably greater than with parenteral administration. It may be given intramuscularly one to three times a week. In most of our patients we have taught the parents to give the injections, as in diabetes. The amount of cortisone to be used is decided by the chemical and clinical results. It is desirable to keep the urinary 17-ketosteroids close to normal limits. Unfortunately it is not feasible to do this at frequent intervals when patients live a great distance from the hospital. Furthermore individual results may be invalidated by infection. Finally, as will be seen later, we have not had close correlation between the clinical control of the disease and the ketosteroids level. Pregnandiol excretions probably furnish a better criterion as to control, but unfortunately few laboratories are equipped to make this determination.

One of the most valuable observations in our experience in controlling the dosage on a clinical basis has been the frequency of erections. At least 2 of our patients have

promptly ceased having erections as soon as an adequate dosage was administered. At the moment we would feel that the persistence of frequent erections would suggest that the patient is not receiving sufficient amounts of cortisone. The second clinical criterion is the rate of growth, both linear and bone age. The third is the prevention of masculinizing features. The trouble with these latter two criteria is that the growth pattern is somewhat irregular and the process may suddenly get out of hand while one is waiting for evidences of effect on growth and masculinity.

Figure 8 illustrates the problem of a female pseudo-hermaphrodite who has had quite satisfactory chemical control without good clinical results. She also had much better control when receiving intramuscular injections than when on oral therapy. Figure 9 shows the converse of this state. The patient is a male with adrenal hyperplasia who also has Addisonian symptoms. In spite of relatively poor ketosteroid control, he has had excellent clinical results on cortisone alone. He also has not collapsed since being on cortisone alone.

Certainly it is obvious that these patients must be followed chemically, but it is equally obvious that their clinical status must be followed and the dose varied

somewhat depending on the clinical course. The intramuscular dosage of cortisone, therefore, is given in sufficient amounts to control the chemical and clinical aspects of the disease. One hundred to 200 mg. of cortisone a week given intramuscularly has been sufficient.

Summary

Certain diagnostic features of congenital adrenal hyperplasia have been discussed. The etiology of various components of this disease has been presented and problems concerning the management of the patients have been presented.

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The Re-evaluation of Contraindications and Risks in Electrotherapy for Psychiatric Disorders

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Often in the past psychiatric patients were denied the benefits of electroconvulsive therapy because of various contraindications to and risks or complications felt to be associated with the treatments. Many patients had to continue to suffer from various depressive, anxiety, or psychotic symptoms, because their physical condition was thought to preclude electroconvulsive treatments or because their families did not want to assume the responsibility for risking such complica-

tions as spinal fractures, which were rather common with such therapy. Too often convulsive therapy was used only as a last resort, when the risk of such dangers as suicide outweighed the possible dangers of the treatments themselves.

Former Contraindications and Risks

Until quite recently, absolute contraindications to convulsive therapy were coronary disease, angina pectoris, acute uncompensated congestive failure, cardiac arrhythmias, hypertension, aneurysm of the aorta, advanced generalized arteriosclerosis, surgical

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shock, cerebral aneurysm, brain tumor, increased intracranial pressure, history of convulsive disorders, hyperthyroidism, tuberculosis, pulmonary edema, recent fractures, bone disease, malignancy, acute infections, thrombophlebitis, glomerulonephritis, peptic ulcer, diverticula, hernias, glaucoma, threatening ablation of the retina, pregnancy, advanced age, chronic neurologic disorders, and during vaccine therapy. Many other conditions such as previous head injuries, syphilis, and malnutrition were felt to be relative contraindications⁽¹⁾.

With the continued improvement of electrical apparatus and techniques, many conditions formerly felt to be absolute contraindications to electrical therapy are now either being treated routinely or are considered just relative contraindications. To many present day therapists only acute uncompensated congestive heart failure, acute myocardial infarction, severe mitral stenosis, pulmonary edema, and surgical shock are considered absolute contraindications⁽²⁾.

Complications or risks in electrotherapy in the past have included death, fracture of bones, especially of the vertebrae, dislocations, apnea, confusion, memory impairment, increase in anxiety, precipitation of a latent psychosis, myocardial failure, coronary occlusion, vascular collapse, cardiac arrhythmias, pulmonary edema, pulmonary abscess and gangrene, neuritis, hemiparesis, Parkinsonism, aphasia, status epilepticus, hemorrhages from and into various organs and tissues, hyperpyrexia, fat embolism, and aggravation of certain preexisting disabilities^(1,2).

The mortality rate from electroconvulsive therapy has varied from 0.06 per cent of patients⁽³⁾ and 0.008 per cent of total number of treatments⁽⁴⁾ to 0.8 per cent of the patients⁽⁵⁾. Osteoarthritic accidents occurred in approximately 1.4 per cent of all treated cases. In a large series of cases, vertebral fractures have occurred in from 1.0 per cent of the patients treated, or 0.1 per cent of the total number of treatments administered to 21 per cent of the patients⁽⁶⁾. The incidence of other complications has also varied widely in different hands.

Improvements in Technique

Just as contraindications to electrotherapy have diminished with recent improvements, so have complications or risks been mini-

mized or eliminated. One of the earliest improvements was the concomitant use of a muscular relaxant during the treatment so as to reduce the force of the convulsion. The earliest drug used for this purpose was curare⁽⁷⁾. In recent years this has been largely replaced by succinylcholine chloride⁽⁸⁾. The latter is quick-acting and its effect is short-lasting, in addition to other advantages over curare. It can be given in doses adequate to produce muscular relaxation without causing complications. The use of the drug is made still safer and pretreatment anxiety is eliminated by combining it with Sodium Pentothal⁽⁹⁾ and administering oxygen⁽¹⁰⁾.

Another improvement in electrotherapy was the use of adequate doses of atropine before treatment so as to minimize cardiac arrhythmias and salivation. The glissando technique was introduced so that the patient could be induced into the seizure gradually without the sudden jolt and flexion of the body which was felt to produce the fractures of the anterior surfaces of the vertebral bodies⁽¹¹⁾. However, the best prophylaxis against complications was alterations in the current employed and the method of administration. By substituting a unidirectional, multi-spike wave for the earlier massive alternating current, the seizure was made milder and safer. By the use of a stimulatory, nonconvulsive current, many patients could be benefited without the need for a seizure⁽¹²⁾. Then these two techniques were combined, so that one supplemented the beneficial effects of the other and new therapeutic dimensions were added⁽¹³⁾.

Techniques gradually developed whereby the patient could have a safe, therapeutic, controlled, modified seizure with few, if any, unpleasant side-effects or complications. If a seizure was desired, it could be induced gradually, with little strain on the spine or other bodily systems; the clonic portion of the seizure could be minimized or eliminated, so that further stress was prevented⁽¹⁴⁾; the seizure was not followed by apnea, as the stimulatory current forced respirations immediately; memory impairment and confusion were minimized or prevented by the stimulatory current⁽¹²⁾; peripheral vasodilation and gradual reduction of intrathoracic pressure by stimulatory current removed cardiac stress by reducing the peripheral

resistance and the input load on the heart⁽²⁾. Furthermore, a technique was developed whereby a unilateral seizure could be produced, thus subjecting only one half of the body to stress and avoiding sagittal arching of the spine⁽¹⁵⁾. This was quite useful in patients with fractures or injuries of one extremity or side of the body who needed psychiatric aid as well. Such patients could still receive electrotherapy without aggravation of the physical condition.

At present many therapists are combining all of the above techniques and advantages in treating psychiatric patients. Adequate premedication includes sedatives and atropine given in succession, adequate amounts of Sodium Pentothal and succinylcholine chloride administered intravenously through the same needle by an anesthetist in a hospital setting, and oxygen. Electrotherapy is then given by means of an apparatus combining electroconvulsive and electrostimulatory techniques. When these measures are followed, the patient should tolerate the procedure well, with all risks and complications eliminated or kept to a minimum.

One of the major advantages of having a qualified anesthetist assist with the treatments is that larger doses of muscular relaxants can be used if desired, so that the patient is completely relaxed during the treatment and there is no movement of the body at all. There is then no stress from the electrotherapy itself but only from the drugs used to produce this state. The anesthetist is prepared to manage the effects of the drugs, their effect is short-lasting, and no real risk is involved.

By the use of the above combined technique administered in a hospital setting, I have been able to administer electrical treatments to many psychiatric patients who just a few years ago would have been considered poor risks by everyone, and who still might be considered such by some. At present there are very few valid reasons for denying a psychiatric patient the benefits of appropriate electrotherapy, and there are even fewer complications to be feared. Often the condition from which the patient is suffering—physical, psychiatric, or both—is more of a strain on his bodily economy than are the needed electrical treatments. Also, because of the gentleness of the technique, many psychiatric patients can have the benefit of

this approach at the onset of their condition without having to undergo many months of different medical regimens or other somatic psychiatric therapies.

The following cases illustrate the successful use of appropriate electrotherapy in patients that some might hesitate to treat because of assumed contraindications or for fear of complications.

Illustrative Cases

Case 1

A 59 year old man was first seen on November 12, 1954, with a history of involutional psychotic reaction for the preceding 16 months. His illness was characterized primarily by profound depression, with suicidal ideation. He was mute, had marked psychomotor retardation, and had lost 44 pounds in weight. He had had a coronary occlusion in May, 1952, necessitating four weeks of hospitalization.

Physical examination showed an emaciated person weighing only 72 pounds and showing marked evidence of avitaminosis. An electrodiagram showed myocarditis compatible with that found in severe vitamin deficiency. The patient was hospitalized and after appropriate medical supportive care was started on electrotherapy on December 2, 1954. He received a course of nine treatments during a period of 14 days. All treatments were given with the assistance of an anesthetist, employing adequate doses of succinylcholine chloride so that all stress was removed from the body, especially the cardiovascular system. The patient tolerated all the treatments well, and was discharged much improved both medically and psychiatrically after 28 days of hospitalization. He was essentially free of all depression, was up and about without any further psychomotor retardation, the avitaminosis was nearly corrected, and he had gained 15 pounds in weight. The cardiac condition was not aggravated by the electrical treatments. When seen on January 10, 1955, he weighed 108 pounds, having regained 36 of the 44 pounds lost during the depressive illness. He was asymptomatic from the psychiatric standpoint, and was about ready to return to work.

Case 2

A 24 year old woman was first examined on March 12, 1952, with the complaint of agitated depression of four months' duration. She had had a spinal fusion operation in the past, which resulted in limited motion of the spine. Because of the severity of her depression and anxiety, she was started on electrotherapy on May 23, 1952. The Reiter apparatus was employed, and she received a course of three stimulatory treatments and six combined convulsive-stim-

ulatory treatments. With this technique I was able to produce a gentle, controlled seizure that held no risk of spinal injury. She tolerated all the treatments well, without aggravation of her spinal condition, and was relieved of the psychiatric illness.

Case 3

A 61 year old man examined on April 13, 1955, was found to be suffering from an agitated depression of about eight years' duration. He had been in psychiatric hospitals twice within the previous two years, and had received a course of subshock insulin therapy without much benefit. Since 1946 he had also suffered attacks of coronary artery disease, and had been hospitalized four times for this condition. He was started on electrotherapy and received a course of six combined electroconvulsive-electrostimulatory treatments over a 10-day period. He tolerated all of the treatments well, and was discharged essentially asymptomatic from the psychiatric standpoint on April 26, 1955, after 13 days of hospitalization. Though he has continued to do well emotionally, he suffered another coronary attack, unrelated to the treatments, on September 18, 1955. When last heard from in October, 1955, he had virtually recovered from the most recent cardiac attack and was still free of depression and anxiety.

This case shows that properly administered electrical treatments can be tolerated by a patient with cardiac disease without aggravation of the organic condition.

Case 4

A 72 year old woman was first seen in consultation on November 1, 1954, because of an intense suicidal drive. She had become progressively depressed since May, 1953, and had made genuine suicidal attempts on several occasions in recent weeks. She was periodically confused, disturbed, destructive, expressed delusional ideation, refused to eat much of the time, had lost much weight, exhibited poor judgment, was unpredictable, and was not able to look after herself. Examination showed her to be suffering from a combination of senility and cerebral arteriosclerosis with psychotic manifestations. She also was receiving digitalis for previous cardiac failure and quinine for chronic auricular fibrillation. She was avitaminotic and markedly underweight. Because of the patient's suicidal tendencies and disturbed behavior, electrotherapy was considered. The family understood that the risk would be great because of her poor general physical condition and cardiac status. Nevertheless, they requested the therapy to be attempted.

The patient received a course of 10 combined electroconvulsive-electrostimulatory treatments be-

tween February 20 and March 10, 1955. Each treatment was given with the assistance of an anesthetist and according to the aforementioned techniques. The patient tolerated all the treatments well, with no aggravation of her cardiac disease. Her depression improved rapidly, she became more cooperative, much of the confusion subsided, she began to eat well, and the suicidal drive disappeared. She was discharged from the general hospital where she was treated after 24 days. At the time of discharge only the basic senile and cerebral arteriosclerotic features were present. Much of her psychopathology had been removed. At times she was slightly confused and emotionally labile, but she was no longer deluded, suicidal, depressed, or a management problem. During the next weeks she continued to do well and was no longer depressed or suicidal. She died of cardiac causes, unrelated to the electrotherapy given, on July 17, 1955.

The last case illustrates that very poor risk patients can receive appropriate electrical treatments without damage. Few patients will be poorer risks than that of case 4. If with her cardiac condition and as close to cardiac death as she was when the treatments were given this patient could tolerate the treatments well, then virtually any type of patient can be treated.

Review of Cases

A review of the last 100 patients treated showed the following conditions to be present; yet all treatments were well tolerated.

Table 1
Coexisting Conditions in Psychiatric Patients
Receiving Electrotherapy

Condition	No. Cases
Hypertension	9
Myocarditis	4
Previous coronary disease	4
Hypotension	4
Cerebral arteriosclerosis	5
Malnutrition	6
Avitaminosis	6
Liver disease	1
Duodenal ulcer	1
Pancreatitis	1
Inguinal hernia	1
Osteoporosis	2
Spinal fusion	2
Osteoarthritis, severe	1
Chronic spinal cord disease	1
Post-mastectomy (radical)	1
Postpartum	1

To date, more than 3000 treatments have been given with the newer techniques and apparatus, and as yet there have been no fatalities, complications, or severe side-effects. The Reiter Electrostimulators were used for all treatments.

Treatment of Geriatric Patients

Until about two years ago there was much reluctance to administer electrotherapy to patients past the age of 60, or even 50. Today, with more people reaching old age and greater numbers being admitted to the senile wards of hospitals, geriatric psychiatry is becoming increasingly important. Until recently these elderly patients were given little more than custodial care, for too often it was felt that the psychiatric symptoms were directly related to the organic cerebral changes and were therefore irreversible. Those who have treated such patients with electrotherapy have found that this is not usually true. Quite often the psychotic symptoms are reversible, as in case 4, even though the organic pathologic changes are not.

Another former objection to treating elderly patients was the greater risk felt to be present. Ehrenberg⁽¹⁶⁾ and Wolff⁽¹⁷⁾, in two recent articles, state that the risks involved are less than previously believed, and they urge more active use of electrotherapy for elderly patients. Ehrenberg treated 112 patients between the ages of 65 and 83, and 78.5 per cent were able to be discharged from the hospital. Only recent coronary occlusions and decompensated heart disease were excluded from their series. Wolff felt that actually electroconvulsive therapy was less a risk to the bones of old people than the accidents of normal life. Five of his patients who tolerated the electrotherapy well sustained fractures from falls subsequently.

Among 1,329 electroconvulsive treatments given by Ehrenberg, there were only four compression fractures of dorsal vertebrae. In more than 6,000 treatments given 249 elderly patients by Wolff, there were eight fractures. Had muscular relaxant drugs and the other techniques described above been used by these two workers, the fracture rate would certainly have been still less, if not eliminated altogether.

Contrary to popular belief, elderly patients are less liable to fractures than the younger athletic group. This is due to the fact that

fractures during electrotherapy do not depend so much upon brittleness of the bones as upon muscle bulk, which is certainly much decreased in the older age group.

Often by removing or reducing the emotional agitation and turmoil in elderly patients, the co-existing organic illness can be improved, for stress is removed from the whole body. By the cautious administration of appropriate electrotherapy many more psychiatric geriatric patients could be cured or improved and allowed to enjoy their remaining years without the necessity of psychiatric hospitalization for custodial care.

Although many advances have been made in the use of electricity in the treatment of psychiatric patients, each patient for whom electrotherapy is considered must be evaluated individually and the advantages to be gained by a possible psychiatric recovery must be weighed against the risks imposed by existing physical disease.

"Shock" Treatment—a Misnomer

The use of the term "electric shock treatment" has always been a misnomer. There is no "shock" related to the treatments. Since the patient is either already asleep before the current is turned on or else the current itself renders the patient unconscious, no pain, "shock," or discomfort is experienced. Surgical shock is absent, for whenever the blood pressure does change during a treatment, it is always elevated slightly. With the earlier form of electrotherapy, rather than any "shock" being experienced, "stress" was imposed on the body economy. It could have been that "shock" was mistaken for stress.

Fortunately, with the newer techniques the "shock," or "stress," has been removed from the treatments to a large extent. Accordingly, attempts are being made to get away from the use of the term "electric shock treatment" and to substitute "electric treatment," "electrostimulation, electroconvulsive treatment," "electronic treatment" or just "electrotherapy." The latter term is preferred, and it is interesting to note that it was used approximately 100 years ago by a neuropsychiatrist⁽¹⁸⁾. That was approximately 85 years before the misnomer "electric shock treatment" became popular. At any rate, today again the "shock" has been removed from "electric shock treatment."

Summary and Conclusions

1. Newer apparatus and techniques today

have decreased the contraindications to and the complications and undesirable side-effects of electrotherapy in psychiatric illnesses.

2. Geriatric psychiatric patients tolerate electrical treatments well, and psychopathologic changes are often reversible.

3. The term "electrotherapy" is more accurate than and therefore preferable to the term "electric shock treatment" in referring to the use of electricity in neuropsychiatric disorders.

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Congenital Biliary Atresia

ALFRED T. HAMILTON, M.D., F.A.C.S.

RALEIGH

Every medical group of this sort has its "one-case surgeon," and on this occasion I propose to be he. I want to talk about my single case of congenital biliary atresia, simply because it may well be the only one I shall ever see, and, from the standpoint of statistical probability, is almost certainly the only one I shall ever operatively cure. This conclusion is based upon the fact that at Boston Children's Hospital since 1916, when exploratory operations first began to be performed on these patients, only 146 have been done. Of these, only 27 permitted some sort of anastomotic operation, and only 12 of the patients are living and can be considered cured.

I need not try your patience with a review of the literature on this subject. The classical experience in the field has been

that of Dr. Ladd at Boston Children's Hospital, and very little has been since added, either to his classification or to his methods of management. Holmes' analytical paper induced the first routine exploration of such patients at Children's Hospital in 1916, and the first successful operation was performed there by Ladd in 1927.

Classification

Certainly all cases of congenital atresia of the bile ducts can be divided into two categories: those which are mechanically beyond correction and are therefore fatal, and those which permit some sort of anastomosis between the bile ducts and the bowel and are therefore potentially salvable. Such a distinction can be arrived at only at the operating table, and for this reason the primary decision to operate is relatively simple, once the diagnosis is reached.

*Read before Sixth District Medical Society, October, 1954.

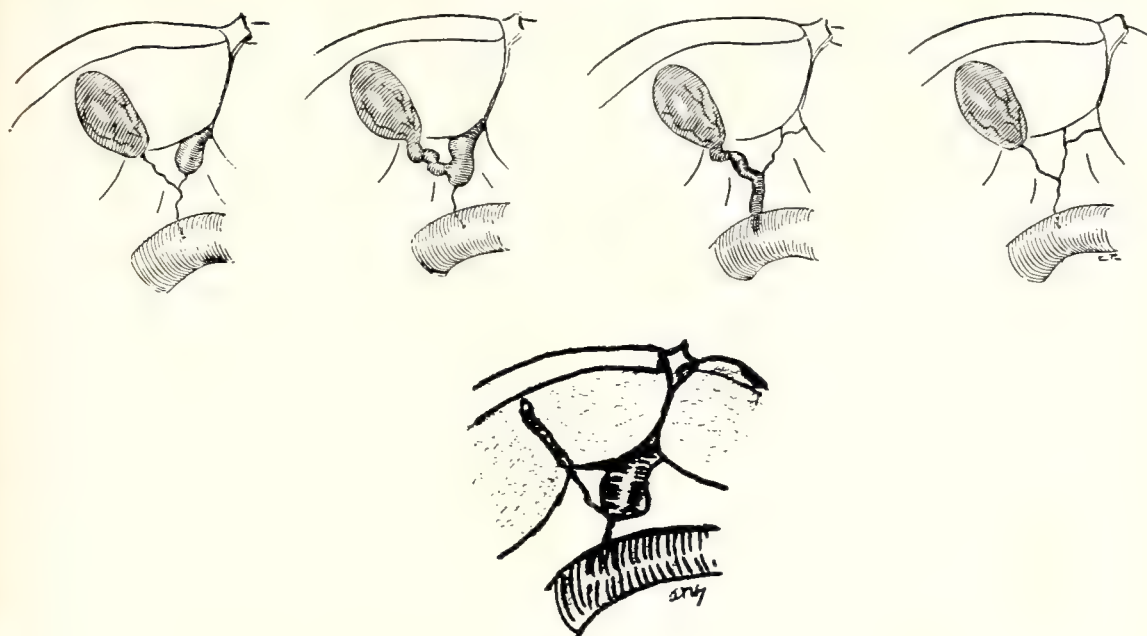


Figure 1

It is well known that conscientious surgeons suffer from the constantly recurring dilemma of wondering whether a proposed grave operation is unnecessary because of inaccurate diagnosis. Fortunately, in this disease such a dilemma does not exist, since almost invariably the diagnosis is easily arrived at and is almost invariably accurate. Any child who reaches 6 or 7 weeks of age with bileless but otherwise normal stools except for perhaps inadequate digestion of fat, who becomes progressively jaundiced, and who has a large liver is almost certainly suffering from congenital atresia of some portion of the biliary system, and the surgeon who sees such a case not only can be sure of his diagnosis, but can know that any procedure that may be indicated on exploration will be justified, since all these cases are fatal without corrective maneuvers.

Figure 1, from Ladd⁽¹⁾, illustrates the various types of atresia that may occur, and in the lower portion I have shown the type of atresia that was present in our case. I don't believe we need discuss the etiology except to say that the pathologic process consists of congenital cord-like agenesis of a portion of the biliary system, ordinarily tubular in character, but in these cases simply an obliterated string of tissue. Ob-

viously the procedure sought is one which will allow bile to drain from the biliary tract into the gut, and, if there is a patent outlet from the liver to a point where an anastomosis with either the duodenum or the jejunum can be made, then presumably recovery will ensue. Figure 1 shows that in some of these cases there is no biliary outlet from the liver. Once this condition is demonstrated at the table, it becomes evident that the case is incurable. If, on the other hand, the hepatic radicals of the common duct are patent, though the distal common duct and the gallbladder may not be, an extremely difficult procedure may bring about a cure.

I have had no experience with the anastomosis of hepatic radicals to the small bowel in infants, but I *have* had with constriction of the common duct distal to that point in adults. If the procedure is as difficult as I believe it would be in a child, it is miraculous that 2 of Ladd's patients survived surgery with apparent cures. Fortunately our case was one of the easiest types to correct. There was marked dilation of the common duct, but atresia of its entrance into the duodenum and atresia of the gallbladder and its duct; of course, this situation permitted a ready anastomosis. Presumably there are cases in which the

common duct proximal to the cystic duct is not mobile enough to permit a satisfactory anastomosis with the bowel. In those cases, where the gallbladder is patent and the patency of the cystic duct can be demonstrated by distending the gallbladder with saline and finding bile in it, one may use the gallbladder as anastomotic material. I believe that such a procedure in an infant would not ordinarily be considered nearly so satisfactory as a permanent and sizable opening between the common duct proper and the small bowel.

Illustrative Case

A seven weeks' old Negro baby was brought back to the hospital of its birth—Saint Agnes, in Raleigh. The mother said that her child was hungry but had begun to be a little yellowish in the eyes. She herself had noticed a mass in his abdomen, and that his stools had been clay-colored and "puffy" since birth. A Wassermann test was negative, an icterus index 45, the urine contained bile, the stool none. There was slight anemia, the blood smear was within normal limits except for anemia, and, as one might expect, the cholecystogram showed no filling of the gallbladder. After two small transfusions and some vitamin K therapy, the child was operated on through a right rectus incision under ether anesthesia. The presenting organ, as always in these cases, was an enlarged, firm, dark green, nodular liver, characteristic of portal cirrhosis. The gallbladder was represented by a little yellowish string lying in the gallbladder fossa. By the use of retractors and pads the duodenum was retracted medially and the liver laterally, with very satisfactory exposure of the interlying space, where one ordinarily visualizes the common duct. By very gentle dissection with Metzenbaum scissors and a right-angle "peanut-bearing" clamp, we were able, with no special difficulty, to visualize a large, distended, grape-like mass, which aspiration with a needle revealed to contain dark bile. We felt further dissection was unnecessary, since it was obvious that this "grape hull," which was the distended common duct, could be readily anastomosed to the adjacent duodenum; this was done in a very satisfactory fashion with an outside row of interrupted cotton and an inverting row of fine catgut, not, as with Dr. Ladd's cases, over the catheter.

As is not at all uncommon, the child had a moderately hectic postoperative course. On his eighth day he coughed and a small area of his wound disrupted, exuding a small amount of biliary material. This situation was managed by adhesive strapping only. The child progressively improved, his stools began to contain bile, the urine began to clear up, and he continued, in his hungry fashion, to remain well nourished. It is striking that these children commonly are not poorly nourished, since they are able to gain weight and remain hydrated, contrary to other atretic disturbances in infants.

The child is now 18 months old and, in every respect, is normal and healthy except for some diastasis in the region of his operative wound. I dare say it will later become necessary to repair this wound, but I intend, as long as he has no symptoms referable to his ventral hernia, to wait a bit longer before undertaking repair. His stools are normal, and he has shown no further signs of jaundice. His mother says that his feedings have been normal for an 18 month old child, and that he has never rejected them or vomited. His weight gain has been normal, and I think it is fair to assume that whatever liver damage had resulted from his long period of obstruction has probably been regenerated by now, as I believe Dr. Ladd says is commonly the case.

Conclusion

This is one disease that can be correctly diagnosed on the basis of a hungry, fairly well nourished child, who, at about 6 weeks of age, becomes jaundiced after having had clay-colored stools since birth and in whom examination reveals an enlarged liver. All these patients should be operated on, because they will all die without surgery.

The surgical dissection should be careful and complete, in order to determine whether or not it is possible to lead a biliary radical into the bowel, since without such an end result, the case will also be fatal. It is encouraging that 8 per cent of such cases will result in a cure.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
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JUNE, 1956

THE PRESIDENT'S MESSAGE

Since the first year of the NORTH CAROLINA MEDICAL JOURNAL, it has been customary to publish the address of the retiring president, together with his photograph, in the first issue after the annual meeting of the State Medical Society. Last months' issue gave the place of honor to Dr. J. P. Rousseau. This month marks a change from this custom. Dr. Donald Koonce's photograph, together with his first Presidential Message, is given first place. Next year the address of the incoming president, Dr. Edward Schoenheit, and his picture are to appear just after the annual meeting of the Society.

This change is the result of the plan adopted for the first time at the last meeting of the Society, whereby the incoming president is installed at the annual dinner, instead of at the final session. The plan apparently met with general approval.

* * *

THE BARKER-WELD ROOM

The *Connecticut State Medical Journal* for May carried perhaps the only article that ever appeared in that publication without Editor Stanley Weld's knowledge or approval. The article was accompanied by full page pictures of Dr. Weld, who has been editor of the *Connecticut Journal* since its first issue 20 years ago, and of Dr. Creighton Barker, who has been executive secretary of the Connecticut State Society for the same length of time. These photographs were obtained without the knowledge or consent of either man, through the cooperation of their wives.

The article, entitled "The Society Honors Two Great Leaders," told how Dr. O. L. Stringfield, when he was president of the Society, suggested to the House of Delegates last December "that appropriate action be taken in 1956 to express the gratitude of the Society to Dr. Creighton Barker and Dr. Stanley Weld for their long and faithful service." The suggestion was unanimously adopted, and a committee appointed agreed to recommend that the meeting room for the Council in the new wing of the Society's headquarters be named for these two men. A small bronze plaque is to be placed beside the doorway, reading THE BARKER-WELD ROOM. Inside the room a larger bronze tablet is to be inscribed: "This room is named in honor of Dr. Creighton Barker and Dr. Stanley B. Weld as enduring evidence of gratitude for their faithful leadership, distinguished contributions and unselfish devotion to the Connecticut State Medical Society." Framed photographs of the two men are to be placed above this tablet.

This JOURNAL joins their many friends in extending to Drs. Weld and Barker heartiest congratulations upon this recognition of their long and distinguished service. It would also like to call attention to the fact that the man who suggested such recognition, Dr. Oliver Stringfield, is a

native North Carolinian, who has himself achieved distinction—first as a star player on one of Wake Forest's championship baseball teams, later in his chosen field of pediatrics, and finally in the service of organized medicine. His selection as president of the Connecticut State Medical Society last year is evidence of the esteem in which he is held by his colleagues in his adopted state.

* * *

DR. PETER PINEO CHASE

One of the best loved medical editors was Dr. Peter Pineo Chase, who since 1942 had been editor of the *Rhode Island Medical Journal*, and had also for years written a daily health column for the *Providence Journal-Bulletin*. Although he was 77 when he died, he had in such full measure the spirit of eternal youth that his friends never thought of him as old. Both he and his wife were experts in using skis, and long after both were white-haired they continued to enjoy this sport.

Dr. Chase was an authority on Samuel Johnson, whom he admired greatly. The editor of the *New England Journal of Medicine* had this in mind when he closed an editorial tribute to him (May 24) with the sentence: "To know Peter Pineo Chase was to love, admire and respect him; he was New England, seasoned and independent; like his literary idol he was one who kept his friendships in repair."

* * *

GUEST EDITORIAL

THE HEALTH OF PHYSICIANS

Do We Practice What We Preach?

Among thoughtful medical men there is an increasing recognition and acceptance of the intrinsic value of periodic physical examinations. Public health authorities, industries, the Armed Forces and other agencies with a stake in human preservation have also given a vote of confidence to the periodic health inventory.

With traditional skill and zest, physicians go about their work of preserving and promoting health among their patients, but being preoccupied with their professional duties, physicians are often neglectful of—and sometimes apparently even indifferent to—their own health. Since the medical profession can be viewed as an occupation-

al group, the Committee on Occupational Health of our State Society is attempting to promote increased interest among physicians in their own personal health.

All of us perhaps hesitate a little for fear of imposing on our colleagues by asking them to give us as individuals their time and energy. Maybe this stems from the fact that we are sure no bill will be rendered. However, I doubt this. I have never heard of a physician declining a discount at a drug store or at a filling station. A more probable factor causing hesitation and delay is the fact that we may be somewhat embarrassed at the thought of having our medical privacy—particularly our emotions—uncovered in the presence of our neighboring colleagues. Another cause of delay may involve the difficulty and inconvenience of traveling to medical centers.

Viewing this matter from a more accurate position, I am confident that instead of being irritated or impatient, physicians would be complimented at being called on for a periodic physical examination by a colleague. In addition, an improved physician-physician relationship could probably be realized as a secondary gain.

This general subject is sufficiently important to justify the interest of all physicians. A periodic inventory of our health assets and liabilities is most desirable. We all know that delay and neglect can be tragic to our patients. Let's not let delay or neglect be tragic to either our patients or ourselves.

MAC ROY GASQUE, M.D.

Medical Director

Ecusta Paper Corporation

Pisgah Forest, North Carolina

* * *

STATE SOCIETY DUES FOR NEW MEMBERS REDUCED JULY 1

As in years past, membership dues for doctors joining the State Medical Society for the first time on or after July 1 will be reduced in half—that is, from \$40 to \$20. A proportionate reduction will be granted new applicants for membership in the American Medical Association after the July 1 date.

Physicians taking up the practice of medicine in North Carolina in the late spring or summer will doubtless be glad to take advantage of the reduction in dues.

BULLETIN BOARD

COMING MEETINGS

North Carolina State Board of Medical Examiners meeting to interview applicants for license by endorsement—Mayview Manor, Blowing Rock, July 27.

American Congress of Physical Medicine and Rehabilitation, Thirty-Fourth Annual Scientific and Clinical Session—The Ambassador, Atlantic City, New Jersey, September 10-14.

Postgraduate Medical School of New York University — Bellevue Medical Center, Eight-Week Course in Occupational Medicine—New York City, September 10 - November 2.

Tennessee Valley Medical Assembly—Read House, Chattanooga, October 1-2.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

The Sigma Xi Club held its first technical session since it was chartered by the national society in April, when two guest lecturers appeared on the program of May 21. Mr. Roy E. Burton, Jr., assistant superintendent of manufacturing, project, and reliability engineer for Western Electric Company, spoke on "Statistical Quality Control"; and Mr. L. P. Huelsman, superintendent of training for army operations group of the field engineering force of Western Electric Company, spoke on "Guided Missiles."

* * *

Dr. Lloyd J. Thompson, professor and director of the Department of Psychiatry and Neurology, has resigned his post, effective June 9. Dr. C. C. Carpenter, dean of the Bowman Gray School of Medicine, has announced that Dr. Angus C. Randolph, who has been a member of the faculty since 1948, will assume the duties of director of the department, having over-all responsibility for the administrative, academic and professional activities of the department, of which Graylyn is the hospital unit. Dr. Richard C. Proctor, who has been a member of the faculty for the last six years, will be in charge of Graylyn and its allied clinics, also on an interim basis.

* * *

In his address to the 1956 graduating class, Dr. Paul Dudley White of Boston made two pleas: "... First, for the more adequate support of epidemiology research on man himself to determine more accurately the beneficial or harmful effects of the various ways of life, and, second, to urge you, my medical friends, and through you, others, in this country or abroad, to support sensible habits aimed to achieve a state of positive health..."

* * *

Through the Medical Foundation of The Bowman Gray School of Medicine of Wake Forest College and the North Carolina Baptist Hospitals, Inc., a trust fund has been established by Mr. Agnew H. Bahnson of Winston-Salem. The trust, to be known as the Bahnson Trust, is established to memorialize Dr. Henry T. Bahnson and his wife Mrs. Emma Fries Bahnson, parents of Mr. Bahnson. The trust is established to provide funds in perpetuity for the scientific development and general improvement of medicine and surgery and for the promotion of knowledge in these fields.

Dr. Henry T. Bahnson began his practice in Winston-Salem in 1869, and was one of the organizers and charter members of the first hospital established in the city. He served on the North Carolina State Board of Health and was president of the Medical Society of the State of North Carolina. His wife, the former Miss Emma Fries, also assisted in the medical progress of the vicinity and was one of the original members of the City Hospital Association in Winston-Salem. She took an active part in its work until the completion of the City Hospital. She was a member of the Dorcas Circle, which founded and operated the Salem Home, and she served as chairman of the board of the Belo Home Association. Dr. Bahnson died in 1917, and his wife survived until 1945, living to be 92 years of age.

In announcing the acceptance of the terms of the trust, Dr. Frank R. Lock, president of the Medical Foundation, stated that "other persons, firms, corporations, and foundations shall have the privilege of making gifts of money or other properties to the Bahnson Trust, which shall be administered as assets of the Trust for the purposes thereof." Under the terms of the trust, two committees were appointed: the advisory committee is composed of Mr. Bahnson, the donor; Mr. Agnew H. Bahnson, Jr., Mrs. Louise B. Haywood, Frederick T. Bahnson, Jr., James A. Gray, all descendants of the late Dr. and Mrs. Bahnson. The physicians committee is composed of Dr. E. Reid Bahnson, Dr. Fred K. Garvey, Dr. Eben Alexander, Jr., and Dr. Richard T. Myers.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA MEDICAL SCHOOL

Dr. W. Reece Berryhill, dean of the University of North Carolina School of Medicine, received an honorary degree at Davidson College commencement exercises on May 28. The degree, Doctor of Science, was presented by Davidson President Dr. John R. Cunningham.

* * *

Dr. Nelson K. Ordway, professor of pediatrics, University of North Carolina School of Medicine, flew to Paris, France, on May 31 to participate in an International Seminar on Organization of Children's Hospital scheduled from June 7-9. The seminar will be conducted by the International Children's Center. Dr. Ordway will be the official

representative of this country at this meeting, and will present in French a paper entitled "Organization of Newborn and Infant Services." While in Europe, Dr. Ordway has been invited to address the Vienna Medical Society at Vienna, Austria. While in Austria, he will be a guest of the Department of Pediatrics of the University of Vienna Medical School.

* * *

Three students and one faculty member of the University of North Carolina School of Medicine were honored during the annual student-faculty day held recently. The students were Laurence Elliott Early of Ahoskie, Everett Thompson of Rocky Mount, and William Woodward McLendon of Greensboro. The faculty member was Dr. John T. Sessions, assistant professor of medicine.

Dr. Sessions was named to receive "The Professor" award, which was given for the first time this year by the senior class to a member of the faculty who in their opinion contributed most to their medical education during their four years in the medical school.

In announcing the award Lee Clark of Everetts, president of the senior class said, "In an effort to give due recognition to those faculty members who have been outstanding in their roles as teachers, the class of 1956 has founded an award which will be called 'The Professor.' We thought this name would be especially fitting, representing as it does the highest attainment of the teaching profession."

Early received the Manning Award, given to the outstanding member of the senior class, based on scholarship, character, leadership, initiative, and original investigative work. This award was set up by an anonymous donor in honor of Dr. Isaac Hall Manning, dean of the Medical School from 1905 to 1933.

Thompson received the William deB. MacNider Award. This award consists of public commendation of a sophomore medical student who is elected by his classmates because he possesses various intangible traits of good character which have been typified by Dr. "Billy" MacNider during his fifty years as teacher and physician at UNC.

McLendon received the Roche Award as the student who best exemplifies the ideals of the modern American physician. The award thus recognizes outstanding scholarship, character, personality, and seriousness of purpose, displayed during the first two years of Medical School. This award was given this year for the first time by Hoffmann-LaRoche, Inc., of Nutley, New Jersey.

* * *

During the Student-Faculty Day, Whitehead Medical Society officers for 1956-57 were named. They are Benson Reid Wilcox, class of 1957, from Charlotte, president; David Bailey Crosland, class of 1958, from Concord, vice president; Al Hamer, class of 1957, from Morganton, secretary; and Edward

Carwile LeRoy, class of 1959, from Elizabeth City, treasurer. Honor Council Chairman is James Horace Merrian Thorp, class of 1957, from Rocky Mount.

* * *

Five thousand dollars is being donated by the North Carolina Memorial Hospital Auxiliary to air-condition rooms and wards for critically ill patients, according to an announcement made recently by Miss Elizabeth Branson, co-chairman with Mrs. Frederick E. Nimmcke of the Auxiliary's Hospitality Shop. The money has been made available from profits made by the shop, where magazines, candies, cigarettes, gifts, and other sundries are sold for patients and their families.

The shop is staffed chiefly by faculty wives and the increasing number of older people who have retired to live in Chapel Hill from its membership of almost two hundred women. Net worth of the shop was listed as \$8,680.09.

It is anticipated that installation of the air-conditioning will begin soon, at the discretion of the Hospital authorities.

* * *

Exercises honoring the 59 graduating students of the University of North Carolina School of Medicine were held Monday afternoon, June 4. The speaker for the occasion was Dr. Warner L. Wells, assistant professor of surgery, who was invited by the senior class to give the address.

Immediately following this convocation a School of Medicine tea for the graduates and their families and friends was held.

The Degree of Doctor of Medicine was awarded to the class at graduation exercises in the evening.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Dr. Philip Handler, professor and chairman of biochemistry and nutrition, was the keynote speaker for an international Conference on Sulfur Metabolism at Roscoff, France, on May 15, and lectured on May 22 and 23 at the College de France, Paris. During his tour, he spent a week visiting the Carlsberg Laboratories at Copenhagen, Denmark, and a week at England's Cambridge and Oxford Universities.

* * *

Dr. Deryl Hart, Duke University surgeon, has been elected vice president and president-elect of the Southern Society of Clinical Surgeons.

A few months ago Dr. Hart was named president of the Southern Surgical Association, and his former residents currently are organizing the Deryl Hart Society.

* * *

Findings by a Duke cancer research team throw further light on the subject of human leukemia by adding strong support to the long-debated possibility that this blood-cancer disease is caused by cancer virus. Dr. Joseph W. Beard, professor of ex-

perimental surgery, declared at the third National Cancer Conference held recently in Detroit.

The Duke team composed of Dr. Beard, Dr. D. Gordon Sharp, and Dorothy Beard has isolated three separate viruses which cause forms of leukemia in chickens, diseases closely resembling human leukemia.

"At present it is not possible to prove conclusively that human leukemia and Hodgkin's disease are caused by cancer viruses, but if it is true, the problem of research has been greatly simplified," Dr. Beard said. "Modern methods and what has been learned from studies on animals and fowls give us the know-how we have needed for direct approach to the study of human leukemia."

Working under U. S. Public Health Service, American Cancer Society and Damon Runyon Cancer Fund grants during the last seven years, the Duke team has made significant contributions to cancer research, including: first purification of a true cancer virus, myeloblastic leukemia; conclusive proof that this virus has enzyme activity that probably plays a major part in producing cancer; and proof that the virus contains substance which is indistinguishable from the normal tissue of the invaded cell.

The answer to the long-debated question of whether human leukemia is caused by cancer virus is now only a matter of time and money, Dr. Beard concluded.

* * *

At the same conference Dr. R. Wayne Rundles, also at Duke, declared that "Reasonably rapid progress is being made toward the eventual control of multiple myeloma," a bone disease closely related to human leukemia.

"The average survival time of these patients has definitely been extended," and treatment produces "excellent" results in some one-third of such cases, and helps significantly in another third, Dr. Rundles reported.

In addition to treatment as such, Dr. Rundles' cancer research team has been constantly improving on blood protein studies which are highly valuable in measuring response to treatment.

* * *

A four-inch length of spaghetti-size tubing filled with liquid helium is helping Duke University scientists explore the strange world of ultra low temperatures.

Dr. William M. Fairbank of the Duke physics department, D. C. Darby Fulton of the College of Engineering, and physics graduate student Chester F. Hwang of East Point, Georgia, invented and developed this device, called a "heat rectifier," to produce extremely low temperatures more easily and quickly than ever has been possible before.

The Duke heat rectifier lets heat travel in only one direction. It consists of a tube filled with a mixture of ordinary liquid helium and a rare form of helium produced by radioactive decay.

NORTH CAROLINA HEART ASSOCIATION

The practice of giving memorial donations to honor the memory of heart disease victims is growing, according to figures released recently by the North Carolina Heart Association. Such contributions to the Heart Fund now approach \$150 a month, it was revealed by the Association's headquarters in Chapel Hill. During the last six months, some 60 individuals and 12 organizations or business firms sent memorial donations to the Heart Fund. Most of these were of local origin, honoring local persons. Among the out of state contributors were residents of California, Wisconsin, New York, Florida, Illinois and New Hampshire.

NORTH CAROLINA STATE BOARD OF HEALTH

Home and farm accidents in 1955 claimed the lives of 764 North Carolinians, to account for one-third of the state's total accidental deaths, Dr. Charles Cameron, accident epidemiologist of the North Carolina State Board of Health, has announced.

Dr. Cameron cited figures which showed that in North Carolina for every five motor vehicle accident deaths, there are three home and farm accident deaths in 1955, and he pointed out that non-motor vehicle accidents remain as the leading cause of deaths among infants and children. More encouraging, however, was the word that in 1955 total fatalities from accidents in the home and on the farm decreased while other types of accidental deaths increased or remained stationary.

* * *

NORTH CAROLINA SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

The camp program includes swimming, fishing, games, camp craft and nature study. It sounds like an active camp and it will be. But the children have to be crippled to come.

The Easter Seal Camp at Swansboro (Onslow County) for Negro crippled children of North Carolina will be in operation from July 8 to July 22, Dr. Leslie B. Hohman, president of the North Carolina Society for Crippled Children and Adults announced recently. Crippled Negro boys and girls between the ages of 8 and 16 will be admitted provided they are toilet trained, able to dress and feed themselves and able to walk even with braces or crutches.

Interested applicants or persons wishing to provide camperships should get in touch with their local chapters of the North Carolina Society for Crippled Children and Adults, or write to Mrs. Eleanor Malone, Program Coordinator, in care of the Society at Box 839, Chapel Hill.

Cost of the camping will be \$25 a week or \$50 for each child for the two week period, which will help meet some of the expenses of the program. The North Carolina Society for Crippled Children and Adults is to underwrite the balance of the cost. Children who are unable to pay should contact their local Easter Seal chapter for camperships.

NORTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS

The Board of Medical Examiners will meet at the Mayview Manor, Blowing Rock, July 27, at which time applicants for license by endorsement of credentials will be interviewed.

AMERICAN COLLEGE OF ANGIOLOGY

The American College of Angiology held its second annual meeting in the Drake Hotel, Chicago, June 9-10, immediately prior to the annual meeting of the American Medical Association in Chicago.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

Acceptance and use of the Salk vaccine for the prevention of paralytic poliomyelitis is in direct proportion to the interest and enthusiasm of local physicians concerning its use. Dr. Hart E. Van Riper, medical director of the National Foundation for Infantile Paralysis, pointed out to physicians in a "Letter from the Editor" appearing in the June issue of "New Information for Physicians on the Salk Poliomyelitis Vaccine." This new 32-page publication, issued by the National Foundation as a service to the medical profession, has now reached 200,000 physicians in the United States.

Where local physicians are enthusiastic about the vaccine, a high proportion of "acceptance" is obtained with the public. Dr. Van Riper's letter reveals. In one North Carolina county, Dr. Van Riper said, where one local physician had been strongly convinced of the value and need of providing against the unpredictable threat of paralytic poliomyelitis, and had spearheaded a campaign for vaccination, nearly 95 per cent of the eligible population has already received one or more injections of Salk vaccine.

Vaccinate now and throughout the summer is the essence of a statement by Leonard A. Scheele, M. D., Surgeon General of the U. S. Public Health Service, which appears in the new issue of "Information for Physicians on the Salk Poliomyelitis Vaccine." Dr. Scheele's statement in full says:

"Physicians and health officers should begin immediate planning for expanded poliomyelitis vaccination programs during the next few months.

"Vaccine should be used as promptly as it becomes available, even during periods of rising incidence of poliomyelitis, to assure maximum protection.

"To provide some protection in higher priority groups as soon as possible, vaccination programs should not only be continued but expanded as more vaccine becomes available throughout the summer months, which are periods of rising incidence.

"The total prevention effect of the vaccine is much greater than any slight hazard of provocation. Evidence accumulated during 1955 supports this conclusion."

The changing picture of poliomyelitis in the United States with the advent of the Salk vaccine is described at length in the new edition of information for physicians. The summary and conclusions of this article declare:

"The ideal dosage schedule for the Salk poliomyelitis vaccine, as presently constituted, is two 1-cc. doses, intramuscularly, spaced two to six weeks apart, with a booster dose of 1 cc. given at least seven months to one year later. The schedule of injections should ideally start during the second six months of life.

"Because of possibly limited vaccine supplies, a compromise or emergency dosage schedule may have to be used in 1956. All available vaccine supplies should be used immediately. Booster doses should be postponed until vaccine supplies are fully utilized for primary immunization.

"Properly processed and tested Salk vaccine is safe—as safe as any biological product can possibly be. The question of vaccine safety is now largely historical.

"Contraindications for administration of the Salk poliomyelitis vaccine have been slightly revised. The vaccine should not be given (1) during major acute illness; (2) during the poliomyelitis season to persons exhibiting symptoms of minor illness, especially fever, sore throat and gastrointestinal upset; and (3) to those in intimate household or institutional contact with an index case of poliomyelitis.

"The risk of provoking paralysis by a first injection of Salk vaccine is minimal. If primary sensitization has occurred, the risk in subsequent vaccine injections is probably nil.

"The best hope of aborting an epidemic of poliomyelitis is to give one injection of the Salk vaccine immediately to the entire unvaccinated population in the community up to age 35 or 40. Households with index cases should be excepted.

"The demonstrated effectiveness of the Salk vaccine, under conditions of use in 1955, was approximately 30 per cent. It was somewhat less effective against type 1 poliovirus infections and epidemics.

"Detailed records of the past incidence of poliomyelitis, paralytic and nonparalytic, with an entirely unvaccinated population in the United States, are provided. These may serve as a base line for determining the long-range effects of programs of vaccination against paralytic poliomyelitis.

"The statistical and epidemiologic picture of poliomyelitis in the United States is rapidly changing as the result of the increasingly widespread use of all available supplies of the Salk vaccine. The World Health Organization has recommended that all countries 'with a high incidence of paralytic poliomyelitis should plan to bring vaccination into routine use at an early date.'

"If efforts are successful to vaccinate a high proportion of the most susceptible age groups in the American population—children aged six months through 19 years and pregnant women—

before the advent of the 1956 poliomyelitis season, a reduction by 50 per cent in the number of paralytic cases that might otherwise have occurred in the epidemic season of 1956 is well within reason. This would represent a most dramatic reduction in a single year. The cooperation of the medical profession is essential to this possible result."

A new statistical analysis of age-specific admission rates of paralytic polio patients to hospitals reporting to the National Foundation reveals that the incidence of paralytic polio is likely to be as high among pre-school and nursery school children as among those in the first and second grades in school.

HEALTH NEWS INSTITUTE

Enough Salk polio vaccine to provide at least two doses each for over 80,000,000 American children and expectant mothers will be produced this year by the five pharmaceutical manufacturers licensed to make the vaccine under strict governmental controls. Since it is estimated that only about 52,000,000 persons are available in the first priority for vaccination this year, supplies should be ample unless necessary local controls slow up distribution.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION New Radio Series on Fun in the Sun

Tips on keeping cool, safe, and happy during the summertime are offered in AMA's new transcription series now available to state and county medical societies for airing over local radio stations. Prepared by the Bureau of Health Education, the "Summer Serenade" series features lighthearted music from the classics and semi-classics interspersed with timely advice on pertinent summer health topics.

* * *

Catalogue of Health For TV

An excellent catalogue of public health motion picture films cleared for use on television has been prepared by public health officials of the Kalamazoo (Michigan) City-County Health Department. Entitled, "Health Education by Television," the catalogue contains a list of films which were selected and shown on the "Here's to Your Health" public service program on Kalamazoo's station WKZO-TV. The AMA has been granted permission to reproduce this catalogue and make it available without charge to those interested in using health films on television. Requests should be made to the AMA Committee on Motion Pictures and Medical Television.

Films Added to AMA Library

Three films recently were added to the AMA Motion Picture Library for use by state and county medical societies. (1) "Alcohol and the Human Body"—portrays the course that ethyl alcohol takes

when it enters the human body in the form of beverages. Black and white; 10 minutes. (2) "Heart Disease—Its Major Causes"—consists of pictures of patients to illustrate the various situations that arise out of heart disease. (3) "Tobacco and the Human Body"—analyzes the contents of tobacco smoke, demonstrates some of the physiologic effects of smoking, and sums up the factors to be considered in deciding whether or not to smoke. Black and white; 15 minutes.

Further information on any of these films may be obtained from the AMA Motion Picture Library.

Dr. Peterson's Work With Handicapped Honored

President Eisenhower's Committee on Employment of the Physically Handicapped has given the American Association a memorial plaque honoring the late Dr. Carl M. Peterson for his lifetime devotion "to the increased health, welfare and employment opportunity of his fellowman."

Dr. Peterson was secretary of the AMA's Council on Industrial Health for 17 years and served as chairman of the medical committee of the President's Committee. He died last fall of injuries suffered in a plane crash in North Carolina.

UNITED CEREBRAL PALSY

"The hope that American children of tomorrow may be spared the disabling effects of cerebral palsy hinges on what we are willing to put into research now," Stanley C. Hope, Chairman of United Cerebral Palsy's 1956 Campaign, declared recently.

The Esso Standard Oil President made this statement as he turned his New York office (15 West 51 Street) over to Gary Bjerkenes, of Brooklyn, New York, for a ceremony launching UCP's seventh annual fund-raising drive.

Calling for "the generous support of the American people, so that United Cerebral Palsy can expand and intensify its research program," Mr. Hope told a news conference that UCP will need at least 25 per cent more than was raised in last year's campaign.

INTER-AMERICAN CONFERENCE ON OCCUPATIONAL MEDICINE AND TOXICOLOGY

The University of Miami, School of Medicine, jointly with the University of Havana, Cuba, School of Medicine, will hold this year the first Inter-American Conference on Occupational Medicine and Toxicology. The meeting will be held September 3-7. The official language of the program will be Spanish.

This year the conference will be held in Miami with the University of Miami, School of Medicine serving as host. The program will include speakers from Venezuela, Mexico, Peru, Columbia, Chile, Puerto Rico, Cuba, and the United States.

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UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE

The Department of Otolaryngology, University of Illinois College of Medicine, announces its annual assembly in Otolaryngology from October 1 through 7. Interested physicians should write direct to the Department of Otolaryngology, 1853 West Polk Street, Chicago 12, Illinois.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Nine laboratory refresher courses covering the serology of syphilis, management and control of syphilis serology by the regional laboratory, and tests for syphilis using the *Treponema pallidum* will be offered at the Venereal Disease Research Laboratory in Chamblee, Georgia, from August, 1956, to May, 1957, the Public Health Service's Venereal Disease Program has announced.

Schedule of courses and dates is as follows:

Serology of Syphilis, Aug. 20-31, 1956.

Serology of Syphilis, Sept. 17-28, 1956.

Management and Control of Syphilis Serology by the Regional Laboratory, Oct. 8-19, 1956.

Tests for Syphilis Using the *Treponema Pallidum*, Oct. 22-Nov. 2, 1956.

Serology of Syphilis, Dec. 3-14, 1956.

Serology of Syphilis, Feb. 4-15, 1957.

Serology of Syphilis, March 18-29, 1957.

Tests for Syphilis Using the *Treponema Pallidum*, April 8-19, 1957.

Management and Control of Syphilis Serology by the Regional Laboratory, April 22-May 3, 1957.

The **Serology of Syphilis** courses are designed to provide refresher training to senior operating personnel of state and public health service laboratories and to other qualified individuals from this and other countries. They include lectures, demonstrations, and participation periods covering the most widely used American methods for the serodiagnosis of syphilis with references to the latest developments in this field.

VETERANS ADMINISTRATION

Veterans Administration announced it has developed a plan for career residency training in anesthesiology for full-time physicians in order to overcome the acute shortage of certified anesthesiologists in VA's Department of Medicine and Surgery.

The program will begin July 1, 1956, in VA hospitals at Bronx, New York; Hines, Illinois; Richmond, Virginia; St. Louis, Missouri; and at the VA center in Los Angeles, California.

VA said the new plan will not be a substitute for the regular residency program, nor will it interfere with the program now in effect.

The plan has an obligated service requirement of two years. Prior service in VA is not a requirement as long as the obligated service contract is signed.

The Month in Washington

A presidential commission's report on veterans' pensions that also goes into the subject of non-service connected medical benefits is stirring up another controversy.

The President's Commission on Veterans Pensions, headed by General Omar Bradley, conducted a study covering more than a year in time and a wide range of subjects. It produced a 415-page report and a total of 70 recommendations.

The seven-man commission's report has this basic premise: military service in time of war or peace should be treated as discharging an obligation of citizenship and not of itself as a basis for future government benefits.

The commission made this additional point: "... under conditions of modern technology and warfare, the national defense might be served equally well by a civilian in a scientific laboratory or a war plant as by a uniformed serviceman—and in view of total war and atomic weapons, perhaps with greater personal hazard to the civilian. This further suggests that the special needs that veterans have because of military service should not be confused with the needs that all citizens have in common for such things as education, health services and economic security."

With this in mind, the commission proposes the gradual elimination of non-service connected benefits and observes: "Their justification is weak and their basic philosophy is backward-looking rather than constructive." Such benefits, it adds, should be limited to a minimum level and retained only as a reserve line for veterans who fail to qualify for basic protection under Old Age and Survivors Insurance (Social Security).

The commission goes one step further by recommending an end to the present automatic "presumption of service-connection" procedure. Now, presumption of service connection is automatic and mandatory for certain diseases if the condition is diagnosed within a specific period of time following discharge. Instead, the commission would substitute medical determination for chronic and tropical diseases, psychoses, tuberculosis and multiple sclerosis, with each case decided on its own merits.

Other recommendations: (1) increased reliance on the OASI system for certain veterans benefits, (2) prompt counseling of all veterans placed on compensation rolls as to VA and federal-state rehabilitation programs, and (3) requirement of reasonable medical or surgical treatment before payment of compensation.

Representatives of veterans groups called before the House Veterans Affairs Committee to comment on the Bradley study complained that some of its proposals would be "extremely destructive" to certain aspects of veterans compensation.

Notes

Two congressional committees, after long studies of problems of narcotic, barbiturate and amphetamine addiction, have come up with recommendations that the United States tighten penalties on narcotics peddling and smuggling, outlaw heroin, and set up a central unit in the Federal Bureau of Narcotics to keep track of known

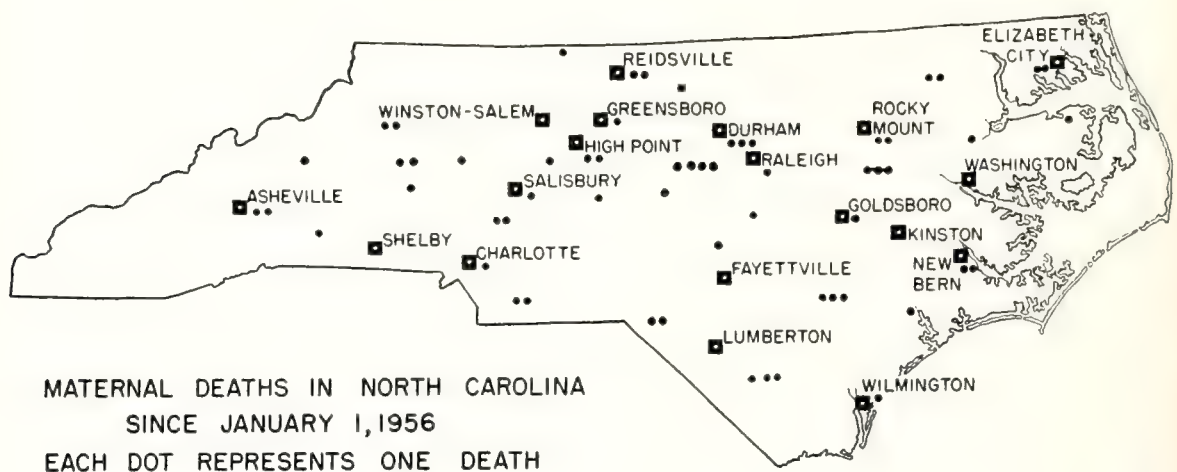
addicts. The proposals were made by the Senate Judiciary committee and a House Ways and Means subcommittee.

The House committee also suggested a law for more stringent controls over barbiturates and amphetamines.

The Senate committee rejected the proposal backed by the New York Academy of Medicine for "clinics" where known addicts could go for regular doses of narcotics.

* * *

The United States Public Health Service is advising private physicians as well as health officers to increase their use of Salk poliomyelitis vaccine. Although supplies now lag behind demand, the expectation is that before the summer is out the situation will be reversed. In line with this recommendation, P.H.S. is urging that physicians use what supplies they have on hand immediately, depending on future production to take care of second and third shots.



NORTH CAROLINA

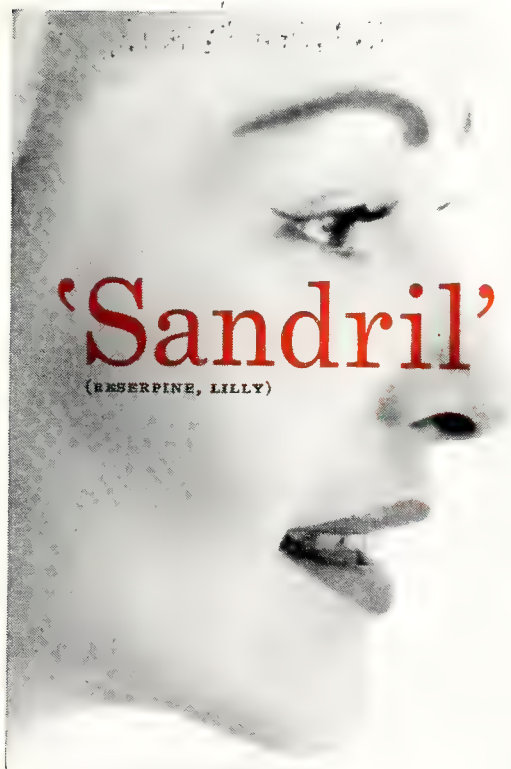
Medical Journal



Vol. 17 No. 7
July, 1956

IN THIS ISSUE:

MEDICINE IN A CHANGING WORLD — DAVID B. ALLMAN, M.D.



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Medicine in a Changing World

DAVID B. ALLMAN, M.D.

ATLANTIC CITY

In considering what I might discuss here with you today, I knew that the subject of my choice should be one of sufficient importance and of sufficient appropriateness to merit your time and attention. It should, I felt, be significant for you and me not only as doctors but as citizens of the world of today. Ultimately I settled upon "Medicine In a Changing World," because I am convinced that the determining factor for survival—as for success—is the ability to adjust to the changing conditions of life, and to overcome them, rather than be overcome by them.

The challenge of life, it seems to me, is change—change which is fraught with peril for those who cannot meet it, but is merely a prologue to new triumph for those who are sufficiently adaptable and resilient to adjust to it.

There can be no growth without change, as there can be no decay. There can be no standing still, either. Change is inseparable from life, and its reverberations seem palely to carry even beyond the frontiers of death. So, we must acknowledge the constancy of change, confront each new change as it comes along, and bend our energies to meeting and besting it. That is our challenge today as members of society, and it is no less our challenge as members of the profession of medicine.

It is not, then, in the fact that changes have occurred and are occurring that our times are remarkable; for as the poet says,

Each age is a dream that is dying
Or one that is coming to birth!

But our times are remarkable—if they are not unique—for the extensiveness of the

range of changes which have taken place and are taking place, and the swiftness with which these changes follow one another.

Within a half century—a period of time to which many of us have been eye witnesses—such a multiplicity of changes have taken place as seem to me to outstrip the sum of all the changes which have come before. There is scarcely an aspect of life which has not been profoundly affected.

Changes In Our Material Life

Consider the sphere of food alone. . . . The fundamental processes of food raising, cultivation, preservation, and preparation—whether we consider the production of vegetables and fruits or of meats—have undergone radical changes based upon new scientific knowledge applied to plant feeding, crop rotation, irrigation, and mechanization; cattle feeding, transportation, butchering, packing, refrigerating, and canning, cooking, and serving. We enjoy today, as the ordinary accommodations of our tables, viands which in variety and excellence were simply undreamed of, impossible luxuries 50 years ago.

There has been, truly, a happy conspiracy of improvement and progress. Properly basic to this progress and chiefly responsible for it have been scientific inventions and scientific production methods. We have utilized water, air, electricity, coal, fuel oils, and natural and artificial gases to operate the countless new engines and mechanical wonders which add to our ease and comfort. Now we are well on the way to the control and utilization of atomic energy!

Within the memory of living men the gasoline internal combustion engine, the turbine engine, the diesel, the turbo-jet, and the jet have all added their power to the dreams of

men, to make even the most fantastic and ambitious of those dreams come true. The automobile alone has made a contribution to the physical, social, and economic growth of our country sufficient to make this age forever memorable. It has really made us, in a physical sense, the United States of America; for by the network of roads which it has necessitated, it has practically eliminated distances which isolate and insulate and has brought us all—physically at least—nearer as neighbors.

Railroads and airplanes have completed the conquests of distances until today we live in a world of physical intimacy, because the modes of travel have shrunk the severing wastelands and have bridged even the broadest oceans. This is change indeed, making us accessible to foe as to friend, and confronting us with new problems in consequence.

Turn where you may, the story is the same. There have been growth and improvement in every aspect of our material life. Incredible machines decrease man's industrial burdens, but by their productions so increase the national wealth as to afford the worker better standards of living and higher income, though progressively lightening his work load.

In his home the average citizen of moderate means today is served by machines as hitherto no person of wealth was ever served by domestic help. Machines keep his home cool in summer and warm in winter; they warm his water for bathing and cool it for drinking; they cook meals, wash and dry dishes, launder clothes, give him the news of the day, and supply entertainment and instruction by both audible and visible means. By means of electric eyes and closed circuit shortwave radio nursery-units, today machines even mind the baby. About the only things machines do not do for us is beget and bear our children, and we are still too set in our ways—and pleased with them—to want them to do that.

Changes In Medical and Surgical Care

Changes in the sphere of medical and surgical care and treatment have been little short of miraculous.

There was a time—and that not long ago—when the members of the medical profession, in America as in the rest of the world, stood in appalling helplessness before the

powers of disease and death. The potent processes of infection and debilitation were little understood and ineffectually resisted. Indeed, the basic processes necessary for the maintenance of healthy living were only hazily guessed at. Then, bit by bit, in an atmosphere of anguished hopes and earnest strivings, the balance of power shifted. Step by step the science of medicine expanded; our knowledge of the true causes of disease conditions increased; and methods were discovered and techniques evolved—in every department of professional endeavor—which have enabled us to enter into the homes and lives of our fellowmen with the gifts of healing and of health.

The magnificent consequences are familiar to us all. No longer need man creep through life in the oppressive and baleful shadows of disease and death. Now—with buoyant step, in the full sunshine of vigorous, protected health—he can stride along the road of life, free from fear and pain—as in all time, he was never free before. . . .

These are changes which medicine has brought about, good changes for which we can and should all be universally grateful: to man, for his unselfish genius and industry; and to God, for His loving providence.

Relatively few are the diseases that continue to defy us. The shock troops of science are vigorously assaulting the gates of the fortresses of disease which still hold out. If man were not by nature doomed to die, science might even aspire to an eternal triumph. As it is, the average human being's life span has become so lengthened as to pose other new problems such as men have never been called upon to deal with before.

Changes In Our National Character

In view of all these accomplishments, one might expect that these would be halycon days of honor and attainment for the men and women of medicine and of widespread satisfaction to all. But to our sorrow we know that such is not the case. Despite the immense benefits which the doctors of today can confer—benefits ranging widely beyond the most rosy dreams of the doctors of other generations—the doctor's place in society, and in the hearts of his fellowmen, is less honored and less secure than it was when he had fewer benefits to bestow. This is because of other changes which have occurred and are taking place—changes socio-economic in

character—changes which we must recognize and deal with for our own good and for the good of society of our day.

Our spiritual heritage

Whether we realize it or not, we all entertain basic philosophic concepts which become the principles of action by which we live. For most of us these concepts are not the results of our original thinking. We adopt them from more vigorously thoughtful men who are, by natural abilities, leaders of thought and of action. Such men wield great influence for good or for evil over the destiny of a nation and its people. We were fortunate in the United States of America that in the days of our beginnings and of our early growth we had high-souled and high-minded articulate leaders who made popular conceptions and principles the most wholesome and the most noble that have ever inspired a nation.

Our founding fathers helped us to realize that, for the good of all, the rights of the individual in any free society must always be preserved inviolate against invasion. They led us to disapprove, and actively to resist as tyrannical, government not based upon the consent of the governed. They made us understand that liberty is the most desirable state for man—enabling him to direct the course of his own life in the pursuit of his personal happiness. And, as a corollary to the concept of individual liberty, they developed an appreciation of the necessity of a spirit of independence and self-reliance. Then they insured this spirit of freedom and independence against deterioration into lawlessness and anarchy, by inculcating the concept of the brotherhood of men under the fatherhood of God.

Love was the leaven which they employed to make certain that the searchings and seekings of vigorously free and independent people would not degenerate into a conflict of selfish desires, but would consolidate into a national strength and a national greatness exemplifying the tranquility of right order. They united our citizens in a dedicated bond of brotherhood and gave to us—and to the world — a new nation, of unprecedented strength and unrivaled greatness.

Love of liberty, responsibility, self-reliance, industry, and resourcefulness.
These were the traits typical of American

citizens. Because of them our country grew and prospered. No obstacle was too great, no barrier too broad for the zest of free men, determined by their own strength to achieve security for themselves and for their beloved country. No competition was too keen, no threat too formidable for men and women dedicated to seek and achieve a fuller, freer life. Nothing was able to impede the sturdy march of America and Americans over the road of freedom to the heights of accomplishment and success—nothing, that is, until the corrupt concepts of materialism tainted the minds, contaminated the hearts, and enfeebled the spirits of men.

Growth of materialism

It was not in America only that the philosophy of materialism made successful inroads. After World War I — which made death, destruction, and privation almost universally familiar — weary men and women were ready for concepts that substituted superficial pleasure for substantial happiness, proximate riches for ultimate wealth, thrills for genuine satisfaction, sex for love, cleverness for wisdom, expediency for principle, and selfishness for sacrifice. Soon success came to be measured not in terms of what had been accomplished but of how little one had to do and how much one managed to get.

The essential drive of Americans remained, but now its character and direction had changed. No longer was it unselfish, moving outward from generous hearts and spirits determined to share their treasure; now it became selfish and narrowing, accepting fleeting material rewards at the cost of eternal spiritual values. In consequence, we learned the deep and bitter truth of Oliver Goldsmith's lines:

Ill fares the land to hastening ills a prey,
Where wealth accumulates and men decay.

The depression made clear how much had changed. Some Americans—whose ancestors had spurned money for the freedom of living—wondered if—their money gone—life was worth retaining. Others decided that the task of recovery was too much for them and sought means of bartering their freedom for security. But—thank God—not all so reacted! Some there were who learned that the things of material character which misfortune can sweep away are not essential to human life

and happiness. These people found that, in adversity, love and loyalty and justice and truth remain unaffected, and in some instances grow deeper and richer. Such people did not falter; taking heart they re-addressed themselves to the task of making a good living, knowing—what they had not known before—that the making of a good living is definitely secondary in importance to the making of a good life.

The struggle between the philosophy of the material and the philosophy of the spiritual ideal continues. Allegiances are still divided. Our ranks are split; therefore our strength is weak. Today we are a people torn between two influences: the influence of the past—of our traditions and lineage—moving us to exalt freedom, personal responsibility, and individual initiative; and the influence of the present—an influence of opportunism—moving us to get rather than to give, to prefer soft security to militant freedom, to want the laxness of personal irresponsibility, even when it means ceding to other agencies—especially of government—the responsibilities we should retain and discharge ourselves.

There is mounting evidence to show that we are in danger of becoming a weak and an effete people. We are manifesting alarming inclinations to sell our birthright for a mess of pottage. And the tragedy of it all is that deep down we retain the old undeniable and ineradicable aspirations, which our forefathers knew were natural to all men. In consequence, if we ultimately get the mess of pottage, we will inevitably loathe it.

This is the changed and changing world which confronts us Americans today. Thus far the changes have been insidious and gradual, but they have been indicative of a progressive weakening of our national character that could not be more ill-timed. A titan of tyranny is even now contending with us, and with all other free nations, for the dominance of the world. It typifies despotism and all that is contrary to our basic ideals and aspirations. It offers the irresponsibility of bondage for the responsibility of freedom. It exalts the rights of the state over the rights of the individual. It holds out material rewards or punishments as a substitute for spiritual satisfactions. Fear and pain and unrelenting oppressions and cruelties are its regular instruments of administration. It

knows nothing of justice or charity. Thus slavery today stands toe to toe with freedom. Now is the time, therefore, when freedom must find full and effective vigor or accept the ignominy of defeat.

Wanted—A New Revolution!

In the light of all these circumstances, it seems to me that what we Americans need most today is a new revolution—a good revolution! I use the term in its literal sense. When anything revolves, it pivots through a full circle to return to its starting point. We Americans need to return to our starting point—to our early vigors—of idealism and dedication. There is work to be done of such magnitude that each must do his full and conscientious best if we are to have a decent chance to win and to survive.

In these times every action of any citizen which further enfeebles himself or impairs our national strength is an act of treason. Selfishness, irresponsibility, indifference, opportunism, dishonesty, injustice, and anything else that makes for diminished individual work or lessens our common cooperation is a blow at the heart of our country today. We need a good revolution—a return to the true and lasting good as our fathers saw it and passed it on to us. As citizens and as doctors we must do all in our power to bring that revolution about.

The men and women of medicine have shown no greater immunity to the corruptions of the short-sighted materialism which grips the world than have any others. This is a time for all to reclaim the best of the past and to re-dedicate themselves to the best that the future can bring. By word and by action we should strive individually to show the way—through unselfish service and high-souled fulfillment of our duties—back to the true character of the American citizen, which once we owned. The good that continues we must acknowledge and advance. The evil that exists, we must dig out and destroy, or else suffer it to destroy us.

The time calls for good doctors everywhere, and for good citizens. Nothing less will do. Our problems are great, therefore our strength must be great, also!

Our forefathers are remembered and revered for the effectiveness of their resistance to the tyranny which confronted them in their times . . . the tyranny of kings.

May we be likewise remembered by those who follow after us for having had sufficient vision to recognize the twofold tyranny of *our* times—the tyranny of soviet despotism that threatens from without, and the

tyranny of selfish materialism that gnaws from within. May we be remembered not only because we had the vision to perceive the evil, but because we had the courage, the high valor, effectively to resist it!

Positive and Negative Aspects of Cerebral Cortical Functions*

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In memory of Ross Herman Jennings Bryson, whose endeavor in the field of neurology was cut short so tragically, I would like to discuss some of the difficult problems which confront those interested in nervous function.

In recent years great strides have been made in the understanding of the anatomy of nervous pathways and connections. Yet the manner in which these structures work together in harmony to produce the activity we call behavior is very imperfectly understood. Every day in the clinic we see disorders of motor behavior such as spasms, involuntary movements, rigidity, or tremor which we recognize as belonging to one or another category of disease, relating to damage in this or that structure. But if we ask the meaning of these various nervous manifestations, and of their relationship to natural function, we receive only partial and unsatisfying answers from neurophysiology. The old notion that the basal ganglia regulated body posture, for example, so that lesions of them led to abnormal attitudes receives no support from what is known of the postural and righting reflexes. We see no purpose in choreic movements or tremors, which could be as much the whim of the Devil himself as of any mechanism known to the physiologist. Yet, in order to understand the pathogenesis of these movements and to devise better methods of treating them, we must know more of their essential nature. With old charts of the "excitable cerebral cortex" it was possible to liken the

precentral gyrus to a hypothetical keyboard for "willed movement." But now there are known to be at least three excitable areas for movement of body and limbs in the cortex, two distinct areas from which speech can be affected by electrical stimulus, three areas for eye movements, and innumerable areas for visceral effects. In the face of such complexity the whole question of the meaning of such "representation" has to be considered anew. The clinical neurologist continually feels the urgency of these questions, and imperfect though our own ideas of these things may be, a discussion of our changing viewpoint may be a stimulus to others.

The accumulation of a great mass of observational data following improvement in methods of electrical stimulation of the brain is essentially anatomic information, indicating the existence of channels of connection, and sometimes the type of interrelation of nervous structures. Though electrical stimulation may closely simulate the effect of epilepsy and is necessary for the analysis of the symptomatology of that disorder, it does not reveal the way these paths function or even the manner in which their derangement disturbs function. Classical neurology has devoted too much attention to "localization," a process designed to point to the incriminating agent with a view to its radical surgical excision. Localization has become a precise procedure for the neurosurgeon, largely owing to the development of radiographic methods that have diminished the value of close clinicoanatomic deduction. The textbook "spicule of bone," removal of which restores complete normality, is a myth. In relation to the problems that face neurologic medicine pin-point localization of "function" is an ela-

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borate diversion, for it continues to distract research from the study of function itself. Nevertheless, it is in relation to some of the most daring and remarkable feats in neurosurgery that our problem has become most acute. Following the operation called "hemispherectomy"⁽¹⁾ for certain types of severe disability, it is apparent that an improvement in the performance of the opposite limbs is frequently noticed, in spite of such extensive removal of brain substance. In addition there may reappear a range of sensory reactions that is not possible following some types of small partial lesions of one hemisphere. If the thalamus is included in the excised hemisphere, such sensory discrimination as coarse localization of touch, for example, can return in the opposite limbs, as was demonstrated to me recently in a patient of Tonnie of Cologne. The conclusion that there must be some error in the conventional views of the function of the thalamus and cerebral cortex seems inevitable.

For a simple performance such as scratching an irritating area of skin, or coughing, or urination, the movement is initiated from the body itself, and is clearly perfected as a spinal or bulbar reflex. For such responses the cerebral cortex appears to have the property of a degree of control, usually of suppression, until the occasion is appropriate. If we wish to define a movement directed to any external object, such as putting food in the mouth, throwing an object or reaching for one, or putting on a garment, we have to relate it to purpose. To find more about the activity commonly called "willed movement," or adapted motor behavior, and its disorders, it seems likely that we have to define them in terms of the environment. The question we must ask is "what is the adequate stimulus?" Since we cannot ask that question of the mind, we must adopt an objective approach and content ourselves with the study of very simple cortical reactions.

Forced Movements

Following some types of frontal lobe lesion in man, a curious involuntary motor disturbance of the opposite limbs frequently appears. Early investigators had distinguished a difficulty in relaxing the grasp of the hand called the "grasp reflex," and an exploration of space by the affected hand

called "forced grasping." These responses usually occurred together and in the beginning were thought of as preservation of an idea; when this was shown to be an untenable explanation, they were classed as "forced movements." Some saw in these responses a loss of a postulated cortical inhibition, and devised the term "tonic innervation" to indicate the consequent persistence of effort. Since we do not understand the meaning of the change in function we call increase in tone, this notion has not been helpful.

¹ We ourselves⁽²⁾ were able to show that the "grasp reflex" and "forced grasping" are in fact automatic responses to stimulation, which was primarily tactile or contactual. They are responses to events outside the body. Though the movement was complex, it could be resolved into simple components for which there was an invariable definable adequate stimulus. The only way the subject can relax is to avoid the stimulus or be presented another stimulus with an opposing effect. The two types of grasping are in fact two degrees of complexity of the same phenomenon, the one a simple fixed invariable response to a moving tactile stimulus, the other an adaptable, projected response in space to the same type of stimulus. Thus we ourselves speak of the true or simple grasp reflex, and the instinctive grasp reaction.

At this point the situation became confused because certain physiologists said that the grasp reflex was present in the thalamic monkey, and was affected by the labyrinth in such a way that it was more easily obtainable in the undermost limbs when the animal lay on its side. Fulton⁽³⁾, for example, describes it in this way. It is important to realize that the grasp reflex we see in man is not thus affected by the labyrinth, and that the phenomenon spoken of by Fulton is what we call the "traction response"⁽⁴⁾—an entirely different reaction, a reflex response to simple proprioceptive pull on the limbs that appears with decorticate spasticity. ✓

The traction response is a direct response to stretch of the muscles, a stretch reflex, of such kind that stretch of the flexors of any of the joints in the limbs induces contraction in the flexors of all joints in that limb. In a patient you would call that hemiplegic spasticity, and indeed the flexed attitude of the upper limb in hemiplegia is due to the overaction of the reflex⁽⁵⁾. The grasp reflex

requires a moving tactile stimulus; when once that is given, then, and only then, a pull on the finger flexors induces a strong opposing contraction. This grasp contraction now continues as long as the pull continues. The grasp reflex is therefore a "triggered response." A special tactile stimulus triggers or conditions a proprioceptive response that is not otherwise active. The grasp reflex and the essential elements of orientation and pursuit in the instinctive grasping can be present in states of clouded consciousness where volition is absent. Their inborn instinctive automatic character is evident in their course of development in the infant.

Release of Function and Disintegration

Observation of patients suffering from progressing types of frontal lobe lesion, such as frontal lobe tumor, showed us that what we called "instinctive grasp reaction," "grasp reflex," and "traction response" were not absolute states but were stages in a process of disintegration of ability for movement, progressing to simple spasticity^(5a), and that if such a lesion was such as to be followed by recovery of function, these phenomena reappeared in reverse order (fig. 1). Indeed in common types of hemiplegia the process of recovery of ability for movement goes through the stages of spasticity, traction reaction, then grasp reflex, and instinctive grasping precedes the final recovery of dexterity in such cases as finally reach that stage^(5b).

Our view of these stages in the disintegration of the cortical control of movement^(5a) is that the most elementary segmental reaction is the stretch reflex, which the labyrinthine and neck reflexes through brain-stem mechanisms coordinate to form the "traction response." At higher, but still subcortical levels, the traction response is in turn subordinated to cutaneous stimulation, and triggered by only the appropriate kind of cutaneous stimulus to allow the grasp reflex. The highest form of automatic adaptation takes the form of delicate orienting movements of the limb perpendicular to the point of contact so as to bring the palm of the hand into relation to the stimulus where palpating and eventually a grasp occurs. This is the instinctive grasp reaction, for which a cortical mechanism is necessary. After pyramidal section in the monkey, Dr. Twitchell and I found that of this series of responses only the traction

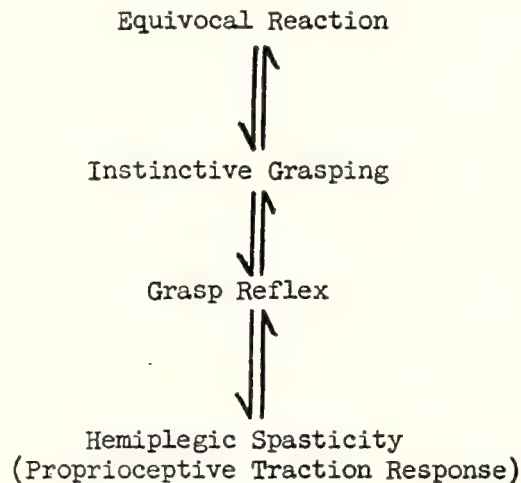


Fig. 1. Relationship of the various stages of disintegration and recovery of stereotactic reactions.

response was present, often feeble owing to the great depression of all function that we call pyramidal shock^(4a). In terms of behavior in response to stimulus, the function dependent upon the integrity of the pyramidal tract is a form of proprioceptive reflex adapted to specific stimuli, chiefly contactual, in the environment. Such stereotactic motor behavior as palpation and tactile exploration is its general field, and it can be seen in man to be readily facilitated by the visual and other stimuli that most clearly activate "purposive" movement. Although the true grasp reflex is not elicitable in the usual acute thalamic animal, it may in time reappear after bilateral excision of all rolandic cortex in the monkey. It is therefore regarded by us as a primitive subcortical reflex upon which exploratory tactile behavior oriented to the environment by the cerebral cortex is based.

After frontal lobe ablation in the monkey the instinctive grasp response appears immediately in the opposite limbs, but in a series of such animals we have found⁽⁶⁾ that the response progressively altered in the weeks following operation. In the second week the affected hand reaches out to grasp any prominent object for a time, and by the third week touches it transiently and grasps it only briefly if at all. But now all manner of objects must be touched as part of a stereotyped restlessness, especially if the cage was small. This compulsive tactile behavior took about three weeks to develop. We believe it

is the basis of the great restlessness of animals with bilateral frontal lesions. They pace their cage incessantly, touching any prominent objects over and over again. The reaction we call instinctive grasping is but a sign of a much more extensive change in total behavior that is apparent also in patients after frontal lobe lesion.

Such compulsive behavior has all the appearance of "release"—but what is missing? It is not just that these animals or patients are uninhibited in general. In response to some kinds of stimulation, for example, a pin prick, they are curiously indifferent. They pay less attention to a threat from the affected side, and they also miss food on that side, so that the older investigators of frontal lobe function frequently referred to "hemianopia"^(4b). They are overreactive to some kinds of stimulus, particularly tactile, and underresponsive to others, particularly noxious, visual and auditory.

Our approach to this problem was to try to find if removal of any one specific area of the frontal lobe was responsible for these changes. It was found that removal of area 6 or area 8 could initiate them, but only transiently. Excision of the supplementary motor area of Woolsey⁽⁷⁾ likewise liberated grasping, but only for one to two weeks. Area 24, the cingulate gyrus, released them for a longer period, but only with ablation of *all* these areas was grasping regularly present for months at a time. What had gone? If one touches the hand of an intact monkey (or the human hand, if its owner has his attention directed elsewhere), there is often a slight unconscious movement of withdrawal. Another touch and it withdraws further. We term this the "avoiding response." In the monkey whose frontal lobe has been removed, the response is no longer elicitable. After removal of the left frontal lobe, there is only grasping or tactile exploration in the right hand, whereas the left hand exhibits a very facile withdrawal or "avoiding" response. Damage to the cingulate gyrus, and to a less extent areas 6 and 8, abolishes the "avoiding response" and releases its opposite, instinctive grasping^(4b).

The Instinctive Avoiding Reaction

In patients suffering from disease affecting the parietal lobe of one hemisphere, we have noted an unusual posture of the outstretched hand, gradual hyperextension of

the fingers and wrist⁽⁸⁾. If the palm of the hand is stroked lightly from palm to finger tip, this posture becomes exaggerated and the whole arm is raised ("avoiding").

In some patients stroking the hand in this way when it is at rest by the patient's side will lead to raising of the whole arm, so that the hand is withdrawn from the stimulus ("levitation"). This reaction is prominent when lesions involve the lateral and more anterior aspects of the parietal lobe. After gross parietal lesions it may be facilitated by vision, so that the fingers extend and the arm rises at the approach of the observer or his hand. It appears in the right hand following left parietal lesion⁽⁹⁾ as well as vice versa, and is associated with a curious lack of interest in the patient with regard to the affected side of his body and of his environment. Other investigators⁽¹⁰⁾ have occasionally noted such postures and termed them parietal "apraxia." We have observed this reaction in relation to the extensor phase of some types of mobile athetosis. We found that the instinctive grasp reaction is not obtainable in the hand affected in this way, and the reaction is indeed the opposite of the grasping reactions. The patient can usually use the affected hand, but overextends the fingers in a clumsy way when he attempts to grasp an object, a phenomenon that has usually been attributed to sensory "ataxia," though sense of position is in fact not necessarily affected.

After ablation of the parietal lobe in the monkey, an overactive "avoiding response" is found in the opposite limb. We have studied this reaction experimentally in parietal, temporal, and occipital lesions in monkeys, many of them with the assistance of Dr. R. A. Chambers. The detailed protocols will later be presented elsewhere, but here I shall discuss our more general clinical conclusions, which are readily observable by simple clinical examination.

In response to unilateral complete ablation of the parietal lobe, it is obvious that the opposite hand not only pulls away from any contact, but the animal retreats from any visual stimulus on the affected side. He will turn the affected side to the stimulus and back round in a circle to avoid it. Thus after left parietal ablation he turns his right side to the visual stimulus and backs to his right side, whereas after left frontal abla-

tion, he advances and deviates to the left, ending in circling forwards to the left, if space permits.) Following symmetrical bilateral parietal ablation the animal becomes a timid creature that tends to shrink into a generally flexed posture in response to any stimulus. He even closes his jaw when food is put to his mouth, and has to be fed by tube for the first few days. Partial ablations show that tactile avoiding is released following ablation of the postcentral gyrus, and avoiding in response to a visual stimulus following ablation of the posterior half of the parietal lobe. Ablation of the central part of the parietal lobe alone, area 7, releases both types of avoiding, but more transiently. Release of tactile avoiding is associated with over-reaction to pin prick, vigorous flexion. In human cases there is seldom any remarkable change in the sensations perceived, though in some with partial lesion of area 3 I have found hyperesthesia without sensory loss. It is important to note that when a large ablation is bilateral, the whole behavior and character of the animal is permanently altered towards compulsive withdrawal.

In an animal the grasping reactions are associated with a response of the suspended animal to contact with any solid object that is called the placing reaction. When a paw touches a surface or its edge, the paw is placed on the surface. The stimulus can be tactile or visual. When the parietal lobe is removed, the limb no longer shows placing reactions and is adjusted to an approaching surface only after very great displacement, the "proprioceptive placing reaction" of Woolsey and Bard⁽⁷⁾. After unilateral parietal lobe ablation in the monkey, not only is grasping, tactile and visual placing lost, but also the proprioceptive placing reaction. Woolsey and Bard were puzzled at finding that after ablation of the other parietal lobe, the proprioceptive placing reaction in the limbs returned.

In detailed studies of long-term survivals after unilateral parietal ablations, Peele⁽¹¹⁾ found that proprioceptive placing returned after several weeks, and in some animals tactile placing after nine months. Removal of area 3 produced the most lasting defect. Proprioceptive placing was clearly present in our monkeys with bilateral parietal ablation, and in the following months gradually became more facile, so that any firm

contact with the limb again elicited a placing reaction, though light contacts still elicited lively withdrawal or "avoiding." This points to a great difficulty in cortical physiology; the reaction itself is not lost, it is de-differentiated—becoming less discriminating. The term proprioceptive placing introduced by Woolsey and Bard to describe the displacement of the limb required to stimulate placing is too arbitrary. A large area of contact is the necessary stimulus to elicit such placing. The area of contact required to stimulate the reaction gradually lessens with time. Just how much the initial depression of reaction is due to the presence of the contrary avoiding response is difficult to determine, but it certainly never recovers its normal delicacy and precision. Accordingly we consider it both depressed and de-differentiated after parietal ablation. Placing can be demonstrated in man, most easily in children, and is another inborn instinctive exploratory reaction directed into the environment by contactual stimulation. The depression of exploratory reactions parallels the "loathness to move" of the affected limbs noted by Peele⁽¹¹⁾ after parietal ablation, and frequently seen in man with parietal lesion.

We were interested in the reactions of the animal after biparietal ablation, and found that it could right itself in falling free in air, even when blindfolded. We therefore sectioned the eighth nerves in order to exclude the labyrinthine reflexes, and found that the animal could then no longer right itself when falling even with the eyes open. This and control experiments showed that the optic righting reflex was absent after bilateral parietal ablation. But more important for our present argument, after section of the eighth nerve the animal assumed an extraordinary posture of general flexion. The limbs resisted, by a steady contraction of the flexors, any attempt to extend them passively. Yet the tendon reflexes were unaltered. The animal, if left alone on a surface, could right itself and use its limbs in walking and eating, but any new stimulus caused them to fly into extreme flexion. We believe that this response is fully explained by the extraordinary degree of overaction responses, now producing a replica of the condition we call flexion dystonia in the clinic. A soft plastic rigidity in the flexors found after parietal lobe ablation had become greatly ex-

aggrated when the remaining source of positive extension reactions, the labyrinth, had been eliminated.

From such experiments it was concluded that the peculiar behavior of the monkey following bilateral extirpation of the parietal lobes was compounded of many reactions opposite to those seen after frontal lobe ablation. Reactions to the environment after frontal ablation were in terms of positive exploration; after parietal ablation they were dominated by withdrawal or "avoiding" reactions. In each case the reactions of the hand to tactile stimulation were but part of a total behavioral reaction to the environment, so that after bilateral frontal ablation the animal is fearlessly restless, after parietal ablation anxiously withdrawn and timid. With bilateral large ablations the changes in behavior persisted for many months and are probably a permanent alteration of the cerebral reactions.

By a series of more extensive ablations it was found that even greater prominence of tactile avoiding reactions was produced by bilateral ablation of occipital and temporal cortex as well as parietal lobes, leaving only frontal lobes and insulas. The visual avoiding reactions, indeed all visual reactions except blink to bright light, are then absent. The animal with frontal lobes and insulas alone can nevertheless show a remarkable degree of movement. He is not spastic, though his attitudes are stiff and awkward, showing a preponderance of flexion in all movements and attitudes. He can climb down from a shelf, and can feed himself, but he is a ridiculously timid creature, screaming when touched and striking blindly at all contacts except on the mouth. He has the most sensitive avoiding reaction to very light touch, even on only a few hairs. After bilateral section of the eighth nerve such animals showed intense flexion dystonia in response to any stimulus, for example, if touched, picked up, or laid on their side, but were nevertheless able to walk and to get to their food, if left gradually to relax. Overactivity of avoiding reactions, with great sensitivity to any stimulus including very light touch, was in part determined by the unopposed activity of the oral part of the cingulate gyrus, but its great intensity in the form of dystonia following eighth nerve section has many of the characteristics of release of the

low level mechanism of withdrawal responses.

Ablation experiments show function only in terms of negatives. The parietal lobes appear as the source of positive tactile and visual reactions to the environment. It is stressed that these are cortical responses, and that whereas the zones of arrival of specific senses in the cortex are essential for the reactions of each specific type of sensation—for example, postcentral gyrus for tactile responses — the reactions are equally abolished by ablation of the interparietal cortex alone or of precentral gyrus alone. Similarly the integrity of the precentral gyrus is not alone sufficient for the instinctive grasp and exploratory reactions, though its presence prevents the subcortical release of the traction response. Parietal ablation disturbs the equilibrium of cortical reactions without leading to subcortical release. We have referred to such disequilibrium of reactions at a cortical level as "transcortical release"^(4b). The cingulate gyrus, and areas 8 and 6 are concerned in tactile avoiding reactions.

The Visual Avoiding Reaction

Where is the mechanism of the visual avoiding reactions that are seen so prominently following ablation of posterior parietal cortex? Klüver and Bucy⁽¹²⁾ described a curious state following bilateral temporal lobe ablation in the monkey. The animal made a continual exploration of every particle in its cage, examining it closely, often with the lips. He picked up and examined over and over again every article, edible and inedible, that came within his vision and reach. Klüver and Bucy thought this behavior was a variety of agnosia. It was associated with sexual hyperactivity and stereotyped restless behavior called "antics."

In our own experiments with bilateral temporal lobe ablation in the monkey it seemed clear that the animal could distinguish edible from inedible particles, discarding the latter before it reached the lips, but nevertheless picking them up again and again.

Our animals were tame and friendly but could still be provoked to anger. The grasping and palpatory reactions were facile, and avoiding was present only in response to a painful stimulus. There was no visual avoiding, but in its place was a compulsive ex-

amination of every visual stimulus that determined restless re-examination of all particles, specks and irregularities of the environmental pattern. The lips were more frequently used for examining strange objects than in the normal monkey, but by no means exclusively so. There seemed to be no error in identification, for if the animal was hungry, particles of food could be unerringly selected from a mixture. We were not impressed by sexual overactivity, though compulsions to tactile stimulation and palpation, including those of sexual significance, were sometimes observed. There was also some restlessness, resembling that after frontal ablation. For us, therefore, the compulsive exploratory behavior of bitemporal ablation in the monkey, resembling similar compulsions in man, which Wernicke called "hypermetamorphosis," is a visual exploratory compulsion, directly comparable to the exploratory tactile compulsions of the animal after bifrontal ablation.

The positive aspect of temporal lobe function is seen in the extremely timid animal after bilateral parietal lobe ablation. If this operation is combined with ablation of area 17, leaving the lower parts of areas 18 and 19 attached to the temporal lobes, and the frontal lobes intact, an extraordinary negative withdrawal from light occurs, and in a light room the animal runs or jumps to any dark object. This negative tropism is, however, part of a series of complex relationships of areas 18 and 19 which I do not have space to discuss here. Enough has been said to indicate my belief that the temporal lobe of the brain is concerned in powerful visual avoiding responses that can, when exaggerated, determine the whole behavior and character of the animal for the remainder of survival (four to six months in our own studies).

If we compare the positive exploratory reactions served by the cerebral cortex with the withdrawal or "avoiding" reactions, in terms of gross tactile and visual stimuli, together with the areas of cortex essential to each (table 1), it is apparent that the type of experiments with cortical ablation which we have described has led to the appearance of symptoms by disturbance of an equilibrium. Removal of the cortical mechanism of any one of these reactions results in exaggeration of the other three, especially that of the corresponding type of stimulus.

Table 1

Comparison of Exploratory and Avoidance Reactions

Positive Exploratory (Palpation)	Negative Withdrawal (Avoiding)
Tactile	Tactile
Rolandic motor cortex	Cingulate gyrus
Post-central gyrus	Area 8
	Supplementary motor area
Visual	Visual
Posterior parietal cortex	Temporal lobe

Thus removal of the posterior parietal region results in the appearance of facile avoiding induced by visual stimuli, and less facile but nevertheless increased tactile avoiding. Removal of the frontal cortex (cingulate, area 8) results in release of tactile grasping, with less facile visual exploration. The cortical type of reaction to painful stimuli is normally an avoiding reaction, enhanced or depressed with other avoiding responses, but not abolished completely. Only when the efferent pathway for a reaction is damaged are the more coarse and prolonged subcortical reactions we call "tonic"—spasticity and dystonia—released. For the type of disequilibrium that results in the appearance of instinctive grasping or instinctive avoiding we have proposed the term "transcortical release," implying a disequilibrium in the natural balance of inborn cortical reactions that we call natural behavior.

Two Major Divisions of Cerebral Motor Function

On the basis of the type of experiment I have outlined it was possible to delineate permanent changes in behavior, both general behavior and types of prehensile reaction in the limbs, in negative terms in relation to absence of the rolandic and parietal cortex on the one hand, and in positive terms in relation to lesions of a large area circling the medial aspects of the hemisphere on the other (fig. 2). We see normal cortical function as a balance of reaction to the environment, to the exteroceptors, in two main divisions, positive and negative. Neurophysiology has up to now been concerned with the presence or absence of positive factors. But it is clear that just as important are the presence or absence of negative functions, of which the

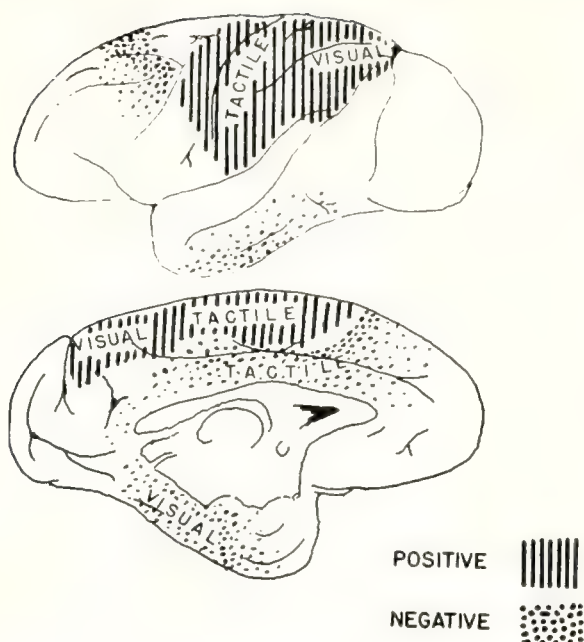


Figure 2

avoiding reaction is a prototype. The negative functions have cortical and subcortical components. The latter can be released in the form of what we call dystonia, just as the positive functions can release the traction response and spasticity. Furthermore, a whole series of changes in behavior are the result of what we call transcortical release — the disturbance of equilibrium between positive and negative at a cortical level. The loss of one type of highly differentiated reaction releases another highly differentiated reaction of opposite type.

The avoiding reactions that I have called negative functions are a primitive mechanism. They are situated in what the anatomist calls archicortex. The efferent pathways are all extrapyramidal, for Tower⁽¹³⁾ showed that "inhibitory" responses to electrical stimulation could be elicited from the same areas after pyramid section in the cat. They include all the reactions to noxious stimuli, which are still exquisitely differentiated after parietal ablation, or indeed combined rolandic and parietal ablation, though the parietal cortex has previously been thought necessary for all highly differentiated cortical reactions. These are the cortical reactions of the extrapyramidal mechanism.

Except for the visual response, the degree of reactivity of the completely decorticate

animal is especially remarkable. The primitive grasp reflex is not elicitable after ablation of the rolandic cortex not because it is a cortical response, but because avoiding is then overactive. If the entire hemisphere is removed, a coarse type of simple grasp reflex then returns, and a coarse indiscriminating type of contact-placing reaction. These are the true lower level reactions. This, we believe, is the reason that hemispherectomy in man can result in more useful movement in the opposite limbs than had been possible after a previous rolandic lesion.

Conclusions

All the instinctive cortical reactions we have discussed belong to a class of responses to environmental stimuli for the performance of which the integrity of specific areas of the cerebral cortex is necessary. They may be exemplified by localized specific reactions to specific stimuli, each of which has separate special cortical mechanism. The patterned topographic representation of the senses in the cerebral cortex is seen as a mosaic in which each element competes for control of behavior.

More than 50 years ago the biologist Jacques Loeb⁽¹⁴⁾ proposed that instinctive behavior was compounded of tropisms in response to the environment, and that the organization of the nervous system was primarily directed to the performance of such tropisms. We have, however, distinguished two broad classes of tropisms, positive and negative, and within each of these at least tactile and visual components. Probably all senses are so organized. The components we have studied appear in man following cerebral lesions. The fundamental characteristics of behavior can be permanently altered by brain lesions in terms of these instinctive reactions. The fascinating studies of innate instinctive behavior in birds and fish by Lorenz⁽¹⁵⁾ and Tinbergen⁽¹⁶⁾ indicate that much is yet to be learned from comparable studies of instinctive cortical reactions in man.

Our study of unilateral parietal lesions in man showed not only the ignoring of events in the opposite half world, but curious negative reactions both physical, such as "avoiding," and mental, such as denial of disability, anosognosia. Study of the effects of frontal lobe lesions shows not only overreactions to natural stimuli, tactile automatisms, and

bulimia, but mental responses such as preoccupation with the present and loss of response to disagreeable stimuli. Now that temporal lobectomy is being practiced we see yet another picture—preoccupations with tactile and visual effects. And we begin to become aware that certain classes of psychiatric behavior which have long defied psychologic analysis and psychologic treatment, such as compulsions, hallucinations, and the stereotyped mannerisms and withdrawn states of schizophrenia, are indeed hypertrophied cortical automatisms carried across the border that separates animal behavior from mind.

In the clinic also incoordination between cortical automatisms in the form of chorea is regularly seen, and the more coarse release of subcortical elements in the form of athetosis and dystonia. An even more violent disequilibrium between positive and negative extremes transforms athetosis into tremor^(6a). Thus we may hope to begin a more rational understanding of cerebral physiology and neurology, based on the study of objective effects in relation to adequate stimulus.

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Clinical evaluation: Inadvertently, clinical evaluation, regardless of its recognized soundness and clarity, has been relegated to a position of secondary importance by ill-advised physicians because it lacks that one tangible asset, a figure reported in per cent elevation, per cent uptake, or gamma per cent. This information trend in medicine has been the result of the widening demand for accuracy of diagnoses and has led the unwary physician to place almost complete reliance upon laboratory tests, without due consideration of their biological limitations, inherent technical inaccuracies, and variable range of normal values.—Bauer, R. E.: The Present Status of the Diagnosis of Hyperthyroidism, Editorial, *Ann. Int. Med.* 44:208 (Jan.) 1956.

The Immunization of Allergic Children

Part 1. Special Reference to Eczema Vaccinatum

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Generalized vaccinia has been known as a complication following smallpox vaccination since the time of Jenner. Martin⁽¹⁾, in 1882, reported 3 cases of generalized vaccinia in patients with skin lesions who were not vaccinated themselves, and the term *eczema vaccinatum* is credited to him. Fifty-six years later, and only 18 years ago, McKahn and Ross⁽²⁾ reviewed this subject and stated that, although the more frequent complications of vaccination, such as urticaria, rashes, lymphadenopathy and auto-vaccination, were well known, the danger of spontaneous spread of vaccinal infection from a recently vaccinated individual to one suffering some skin affection was not so widely recognized. They also pointed out that seven American texts did not mention this danger to a person with a skin disorder.

Incidence

During the smallpox epidemic in New York in April and May, 1947, five million people were vaccinated. Greenberg⁽³⁾ found that, as a result of this mass vaccination, 45 cases of generalized vaccinia developed—a ratio of 1:110,000. Thirty-eight of those with generalized vaccinia had pre-existing dermatoses. Ten with skin diseases were vaccinated, while the remaining 28 had not been vaccinated themselves. All but one of these had had intimate contact with recently vaccinated persons. This contact usually occurred in the home, but a few of the cases developed after exposure to a recently vaccinated nurse in a hospital. Of the group of 28 patients, all but one were children under the age of 5 years, and deaths occurred in infants aged 4 and 6 months respectively. In a previous detailed report of 15 cases of generalized vaccinia resulting from this same epidemic, Mustard and Hendrick⁽⁴⁾ emphasized the

preponderance of eczema vaccinatum among infants.

The impact of this experience in New York should be strong enough to remind all of us of two important contraindications to smallpox vaccination:

1. *Never vaccinate a person with a skin disease.*
2. *Never vaccinate an intimate contact of a person with a skin disease.*

Experience at Duke

Nevertheless, sporadic cases of eczema vaccinatum still occur. For example, only last year, during the summer of 1955, 2 patients with eczema vaccinatum were admitted to the Pediatric Service at Duke Hospital. Neither of these children had been deliberately vaccinated. In addition, this year (1956) an adult with a systemic disease and skin manifestation died of generalized vaccinia following vaccination⁽⁵⁾. This experience prompted us to review the records of children under 14 years of age with atopic eczema to determine how frequently this accident occurs. We have excluded all adults and all patients who had other skin diseases or no skin diseases, and all patients with Kaposi's varicelliform eruption, which in some ways simulates eczema vaccinatum.

Among 415 children with atopic eczema, 8 cases of eczema vaccinatum were encountered. This means that in this series approximately 2 out of every 100 patients with atopic eczema had resultant eczema vaccinatum. In addition to these 415 diagnosed as atopic eczema, 815 cases in patients under 14 years of age were classified under the general term *eczema*, presumably allergic in etiology. Combining both categories, this reduces the incidence of eczema vaccinatum to 6.5 per thousand, or one case in each 150 children with eczematous skin conditions. Since this incidence represents a great danger to the eczematous child, we believe that these cases are worthy of reporting in some detail.

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Read before the Section on Pediatrics, Medical Society of the State of North Carolina, Pinehurst, N. C., May 2, 1956.

Table 1

Summary of Clinical History Eczema Vaccinatum

Case*	Age when vaccinated	Onset Eczema	Duration of Exposure** (Days)	Source of Vaccination	Contact	
					Relation	Age (Years)
M. J.	4 mo.	2.5 mo.	7- 9	Preschool	S	6
C. C.	6 mo.	2 mo.	7- 9	—	B	5
W. S.	9 mo.	3 wk.	8	School	S	6
L. W.	1.5 yr.	3 wk.	14	—	B	6
J. E. H.	2 yr.	5 wk.	15	Physician	B	6
W. W.	5 yr.	3 mo.	19-20	—	S	6
J. B.	5 yr.	7 mo.	9	Nurse	B	2
F. McR.	5.5 yr.	3 mo.	17	—	PM	?

*All the patients were Negro male except M. J. and J. E. H. M. J. was the only Negro female and J. E. H. the only white female patients.

**Duration of exposure represents the approximate interval between the vaccination of the contact and the onset of symptoms.

Abbreviations are as follows: S = Sister, B = Brother, PM = Playmate.

Source of vaccination refers to either the individual giving the vaccine, the place the vaccine was administered, or the stated purpose of the immunization.

Age

All our patients with eczema vaccinatum were under 5½ years of age, and 5 of them were 2 years or younger. Only 1 case of eczema vaccinatum occurred in a white child. One case, in a 6 month old Negro male, terminated fatally (table 1).

Contacts

The contacts were all siblings of the patients, with the exception of a 5½ year old Negro boy whose contact was a playmate. It is of interest that the known contacts were all 5 to 6 years of age, with the exception of one 5 year old boy whose contact was his 2 year old brother. He had been vaccinated by a county nurse. This grouping of contact ages and the fact that 3 patients with eczema vaccinatum were admitted in June, and 1 each in January, April, May, July, and August, strongly suggest two facts: The first is that the contacts were vaccinated by someone other than a physician familiar with the medical problems of the entire family. The only case in which a family physician is known to have administered the vaccine to a contact was in the case of J. E. H., whose severe and unmanageable eczema early had separated her, in effect, from the physician's care. Second, the predominantly spring and summer hospital admissions of patients with eczema vaccinatum would suggest that the contacts were being vaccinated to comply with the immunization requirements for admission to schools.

Onset of symptoms

The estimate of time between the vaccination of the contact and the onset of symptoms in eczema vaccinatum varied between 7 to 20 days, with an average of about 12 days. These figures are similar to those reported by Mustard and Hendrick⁽⁴⁾. In their series of patients, of whom 7 were vaccinated themselves, the average period of incubation was 11 days and the median was 9 days. As the authors point out, the clinical history is often unreliable, as to both the manner in which it is given and how it is recorded. Regardless of this unreliability, one important inference can be drawn: A vaccinated person should be considered a danger to the eczematous child until the scab from the vaccination site has fallen (fig. 1).

Febrile course

The febrile course of these patients, with the exclusion of the fatality, averaged 12 days. The history of fever prior to admission averaged about four days. F. McR.'s history of 14 days of fever was complicated by the fact that he was said to have been suffering from bronchitis or bronchopneumonia shortly after his earliest possible exposure to the vaccinated contact. His rash was noticed to have become worse only four days before his admission. In general, the fevers recorded after admission were of the sustained type and ranged from 2 to 16 days, averaging 7 days. Excluding the case which terminated fatally, the average was 8 days.

The mean length of hospitalization was 21

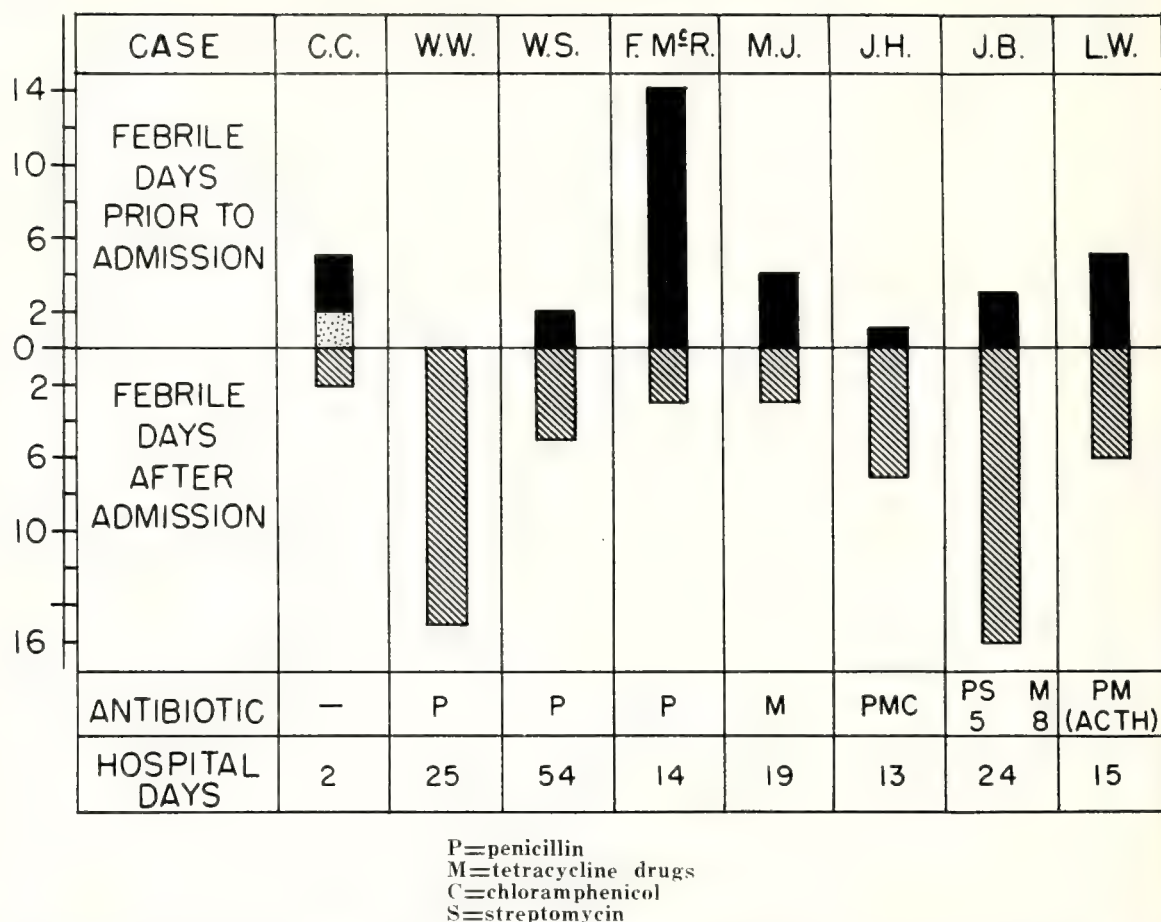


Fig. 1. Duration of febrile course of 8 patients with eczema vaccinatum. C.C. is the only fatal case. Figure below antibiotic indicates days of therapy. ACTH given prior to admission in case L.W.

days, with a range of 13 to 54 days, excluding the fatal case.

Comparisons between cases treated with what now appears to be extremely small doses of penicillin and those treated with larger doses of penicillin, streptomycin, Chloromycetin or one of the tetracycline drugs or combinations indicate no difference in the febrile course. The hospitalization period was longer in those cases treated with penicillin alone. It must be pointed out, however, that the one case with eye involvement and ichthyosis is included in this group and represents the longest single period of hospitalization. Regardless of the statistics, this series is entirely too small to enable one to draw any conclusions regarding the superiority of one antibiotic over another in the treatment of eczema vaccinatum. One important thing can be said: Eczema vaccinatum represents a preventable and unnecessary economic burden to a family that is already

overburdened.

Illustrative Cases

The following three cases are presented because of their complicated nature.

Case 1 (C. C.)

A 6 month old colored male was seen at Duke Hospital on June 14, 1939. He had had infantile eczema at about the age of 2 months, and had been treated with crude coal tar ointment and soaks. The eczema had never cleared completely. Fourteen days before his admission, his 5 year old brother had been vaccinated, with a successful reaction. The patient had remained well, however, until 5 days prior to admission when the eczema became worse, spreading rapidly over the face, scalp and neck, and was accompanied by an elevation of temperature. His general condition became progressively worse. Two days prior to admission, the fever abated but the respirations became labored. The patient began to vomit frequently (fig. 2).

On physical examination the infant was found

to be acutely and gravely ill. He was stuporous and emitted a feeble cry with each breath. He was obviously dehydrated and acidotic. Temperature was 38.5 C., pulse 140, and respirations 40. Crusted and pustular lesions were noted over his entire face, scalp, and neck. A few scattered umbilicated lesions were noted in the left antecubital and pubic regions. His initial white blood count was 16,400, with a marked shift to the left. In spite of supportive and symptomatic care, the patient expired on the second hospital day. At autopsy, besides the obvious observations of eczema and vaccinia, evidence of interstitial mononuclear pneumonia was found.

The case of W. S. is interesting because he is the only patient on whom we have had long follow-ups and because of a basic skin disorder with superimposed atopic eczema. This patient is the only one of the 8 cases of eczema vaccinatum with eye involvement.

Case 2 (W. S.)

A 9 month old colored male infant was admitted to Duke Hospital in June, 1946. His mother stated that after his birth the skin had peeled off his entire body, leaving him "red like raw beef." At about 3 weeks of age, a rash appeared over his face and spread steadily until,

after 2 or 3 months, it involved his entire body. Thirteen days before admission, his 6 year old sister had been vaccinated at school. Approximately eight days later the mother noted blisters the size of pin heads over the patient's chest. Two days later fever developed, and the rash spread rapidly to the arms, legs, and face. The patient acted as though "in a daze." He was seen by a dermatologist who referred him to Duke Hospital (fig. 3).

On physical examination the infant was acutely ill and actively scratching his face and scalp. His temperature was 38 C. Over the entire face, head, and arms was a diffuse raised, round, opaque, vesicular eruption which, when ruptured, allowed a seropurulent exudate to escape and left a bleeding macerated base. The skin over the legs was dry and wrinkled, described by one observer as "elephant-like." Generalized adenopathy and a vascularized infiltration of the left cornea were noted. The white blood count was 45,000, with a shift to the left.

He was treated with penicillin, 10,000 units every three hours, and given local skin care. Atropine drops and penicillin ophthalmic ointment were instilled in the left eye. He gradually improved and was discharged after 54 days of hospitalization.



Fig. 2. (Case 1) Fatal case of eczema vaccinatum. Note discrete umbilicated vaccinal lesions.



Fig. 3. (Case 2) Eczema vaccinatum in 9 month old Negro infant with severe generalized ichthyosis. Note lymphadenopathy.

We subsequently saw this patient seven years later. He was then suffering from chronic eczema, ichthyosis, hypertrophied tonsils and adenoids, with excoriations about the nose and eyes. He also had bilateral pterygia and allergic

conjunctivitis. In spite of these processes, there were no permanent vaccinia scars and the left cornea was clear (fig. 4).

The third case presents a problem in differential diagnosis and emphasizes the importance of establishing a diagnosis before launching into any therapeutic regimen, particularly one including the steroid hormones, which may interfere with the basic immunological response and eventual recovery of the patient.

Case (3)

An 18 month old colored male was admitted to Duke Hospital in August, 1955. At the age of 3 weeks he had had a persistent "milk rash" which frequently had become infected, requiring antibiotic therapy. Two weeks before his admission a vesicular rash developed on his extremities. His older brother at this time had a crust on his vaccination, which had been done one to two weeks previously. Approximately six days before admission, the patient began to have fever, and the rash spread from his extremities to involve the face and eyes. He was



Fig. 4 (Case W.S.) Photograph on left shows detail of lesion of eczema vaccinatum about the face and eyes, most extensive in area of pre-existing atopic eczema. Photograph on right shows patient 8 years later, with no residual vaccinal scars, but persistent eczema, ichthyosis and excoriations about orifices due to chronic infection.

seen by his physician, who treated him with penicillin, ACTH, and hydrocortisone lotion. Since he failed to respond to this treatment, he was referred to Duke Hospital.

On arrival his temperature was 40.8 C., pulse 160, respiration 50. He was a critically ill infant, with a severely swollen face, covered by thick crusts, purulent exudate, and raw areas which bled easily. There were discrete vesicular umbilicated lesions, with some coalition over the limbs and buttocks. The corneas were free of involvement. The white blood count was 8,360, with 56 per cent polymorphonuclear cells and 44 per cent lymphocytes per 100 cc.

He was given antibiotic therapy consisting of Achromycin and penicillin, local skin care, and fluids. His temperature returned to normal on the fifth hospital day, and he was discharged after 15 days free of vaccinia lesions.

Differential Diagnosis

The differential diagnosis of eczema vaccinatum must include Kaposi's varicelliform eruption, secondarily infected eczema with bacteria or fungi, and acute exacerbations of atopic eczema. Paramount in the diagnosis is the history of contact with a vaccinated person. This is the most valuable aid to the physician confronted with the problem. In eczema vaccinatum, the lesions are discrete, umbilicated and vesicular, with an erythematous base. Although there may be a tendency to confluence, the basic nature of the lesions persists. Kaposi's varicelliform eruption can be differentiated only by laborious laboratory methods, including the isolation of the virus. Usually this is needed when the contact with the source of the virus is obscure. Bacterial and fungal infections can be differentiated by culture and the appearance of the rash. With this more frequently encountered complication, infected eczema, the eczematous skin is erythematous, weeping, and fissured, with a tendency to

crust formation. General and local signs of infection are of little value. An acute attack of eczema is usually characterized by the presence of many fine papules topped with pin-point vesicles, which break and, oozing serum, form a typical sticky crust. In the case of eczema vaccinatum, the more isolated, larger vesicles, which become umbilicated, usually are quite typical after 24 hours. Thus within a short time the diagnosis becomes apparent, if the possibility of exposure is kept in mind.

Summary

Eczema vaccinatum is a lamentable and preventable disease. Eight cases occurred in 415 cases of atopic eczema, representing about 2 cases of eczema vaccinatum among each 100 cases of eczema. All the patients were 5½ years of age or younger, and death occurred in the case of a 6 month old infant. The vaccinated 5 and 6 year old, preschool and school-aged sibling constitutes the greatest single menace as a contact with the eczematous child. Adherence to the contraindications of smallpox vaccination is urged.

Never vaccinate a person with a skin disease.

Never vaccinate an intimate contact of a person with a skin disease.

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If there was any question about it, the AFL-CIO as a joint organization favors national compulsory health insurance, as each group did before the merger. The AFL-CIO stand was taken officially for the unions by Nelson Cruikshank in testimony before the House Ways and Means Committee on a bill for increased payments for the medical care of public relief recipients—Washington Office of the A.M.A.

Medical Schools - - U. S. A.*

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CHARLOTTE

Almost everyone is interested in health and medical care, and almost everyone talks about it, or reads about it, or both. For example, during the first 10 months of 1955 national magazines with a circulation of one million or more published 342 medical articles; virtually all daily newspapers carry one or more medical columns; medical television programs are increasing rapidly in popularity. The public's appetite for medical information appears to be insatiable. Recognizing this fact, we have established facilities in our national, state, and local medical organizations to help writers get the facts straight about medical subjects. We believe in the general education of the public about medical matters.

There is one facet of the medical care picture, though, about which the public has *not* been adequately informed. This is a fundamental factor in the general economics of any business operation—namely, the *supply* of the *product*. On the first nationwide observance of Medical Education Week, I want to discuss some facts and fallacies about the production of doctors in the United States.

Present Supply of Physicians

A census just completed by the American Medical Association shows that we now have 218,061 physicians in the United States. This compares with 201,277 in 1950, and represents an average annual net gain of 2,797, or about 13 per cent. This is a respectable rate of growth. During the six-year period cited this gain was highest in the Pacific Coast area, where it reached 23 per cent; our South Atlantic region came next with a gain of 16 per cent.

The 218,061 physicians are classified in table 1. Approximately one-third are full-time specialists, one-third general practitioners, and one-third something else. A part-time specialist, for example, is a general practitioner who devotes just part of his time to one specialty. Hospital service in-

cludes interns, residents, and full-time laboratory specialists, radiologists and anesthesiologists.

Table 1
Classification of Physicians

	Per Cent
General practice	30
Part-time specialist	10
Full specialist	31
Hospital service	17
Retired	5
Industrial and others	4
Government, including military	3

Government service, *including* military, accounts for 3 per cent.

Of the 81 approved medical schools in the United States, 75 conduct full four-year programs and six conduct two-year basic medical science programs. In addition, seven new medical schools are in the process of being developed, four of which are in the South. In 1954-1955 medical school enrollment included 28,583 full-time *medical* students, plus 57,000 *other* students such as technicians, dentists, veterinary and pharmacy students, interns, and graduate students in other scientific fields. This is a part of the medical school "load" not generally known to the public. Seven thousand new M. D. degrees were granted in 1955.

Common Misconceptions

Here are the most common misconceptions about medical education:

"Medical schools keep a tight lid on enrollments. . . ."

"Only 'A' students are admitted to medical schools. . . ."

"The AMA won't let medical schools expand. . . ."

"Doctors can't keep up with our fast-growing population. . . ."

"Medical schools need federal help to meet expenses. . . ."

Before discussing these misconceptions in detail, let's begin with the general question, "Are there enough doctors?"

Figure 1 shows the increase in the production of physicians since 1910 as compared

*The text of an informative address prepared for lay audiences (civic clubs, etc.) on the occasion of Medical Education Week, April 22-29, 1956. All data quoted were obtained from the American Medical Association.

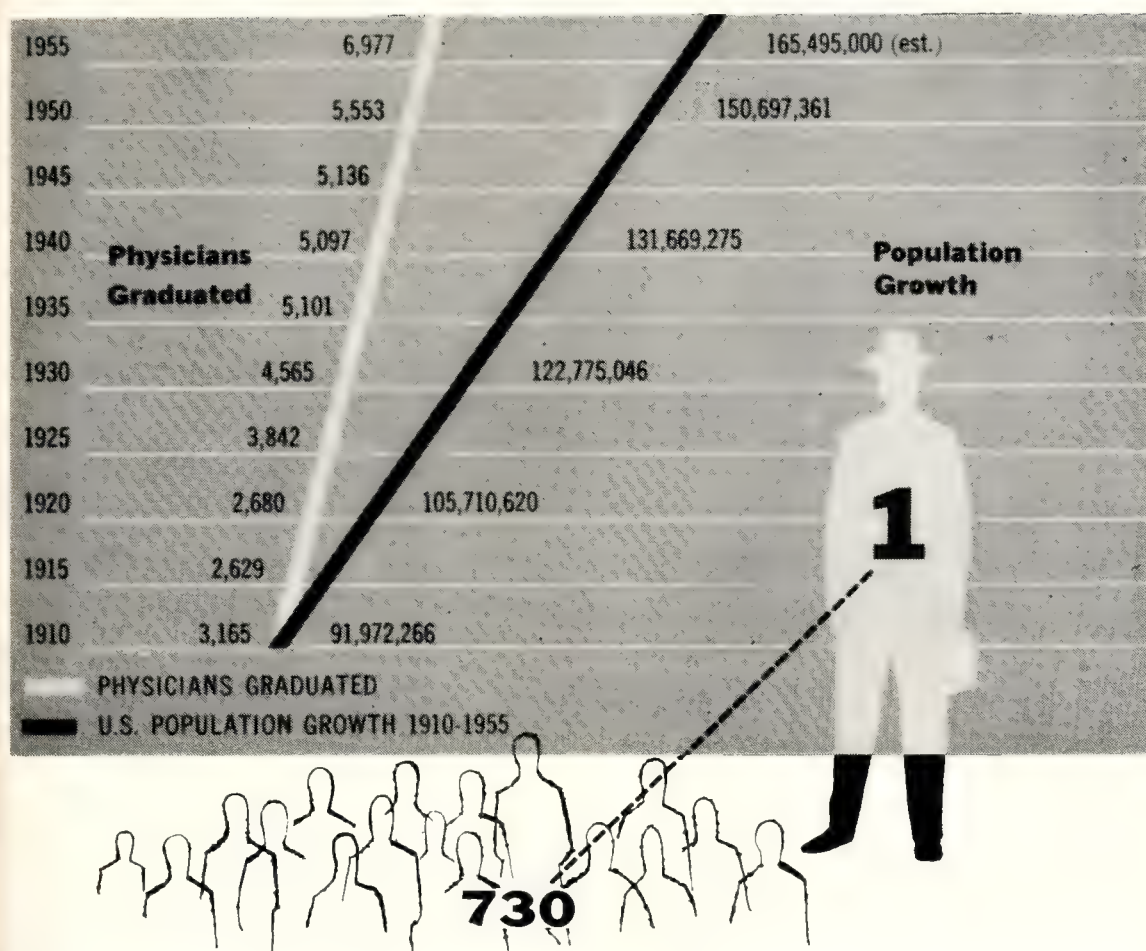
120% Increase**80% Increase**

Fig. 1. Comparison of increase in physicians with population growth in United States (1910-1955).

with the increase in our population during this same period. In 1910, 3,165 physicians were graduated, whereas last year 6,977 were graduated. This is an increase of 120 per cent. In that same period of time the population of our country increased only 80 per cent. Notice the rapid increase in medical school graduates in the past ten years: from 1945 to last year there was an increase of 2,000 students graduated per year.

At present we have one physician for every 730 persons in the United States; this is the best ratio of any nation in the world with the exception of Israel, where an influx of refugee doctors from Europe has produced an abnormal situation. Even though it is widely used, this ratio of doctors to population is a crude and inaccurate yardstick. The two significant factors which it does not take

into consideration are (1) the *distribution* of physicians and (2) the *productivity* or capacity of physicians. There are some thinly populated areas where there are not enough physicians; we are attempting to remedy this by physicians' placement services and by offering incentives to younger physicians to come to these areas.

Then there is the matter of the physician's productivity or capacity, which today is much greater than it was 25 years ago. With adequate office space, modern equipment, and well trained nurses, technicians and other assistants, the physician in private practice today can render good service to twice or three times the number of patients taken care of in a day's time 25 years ago. With automobiles and good roads, the general practitioner today treats a great many more per-

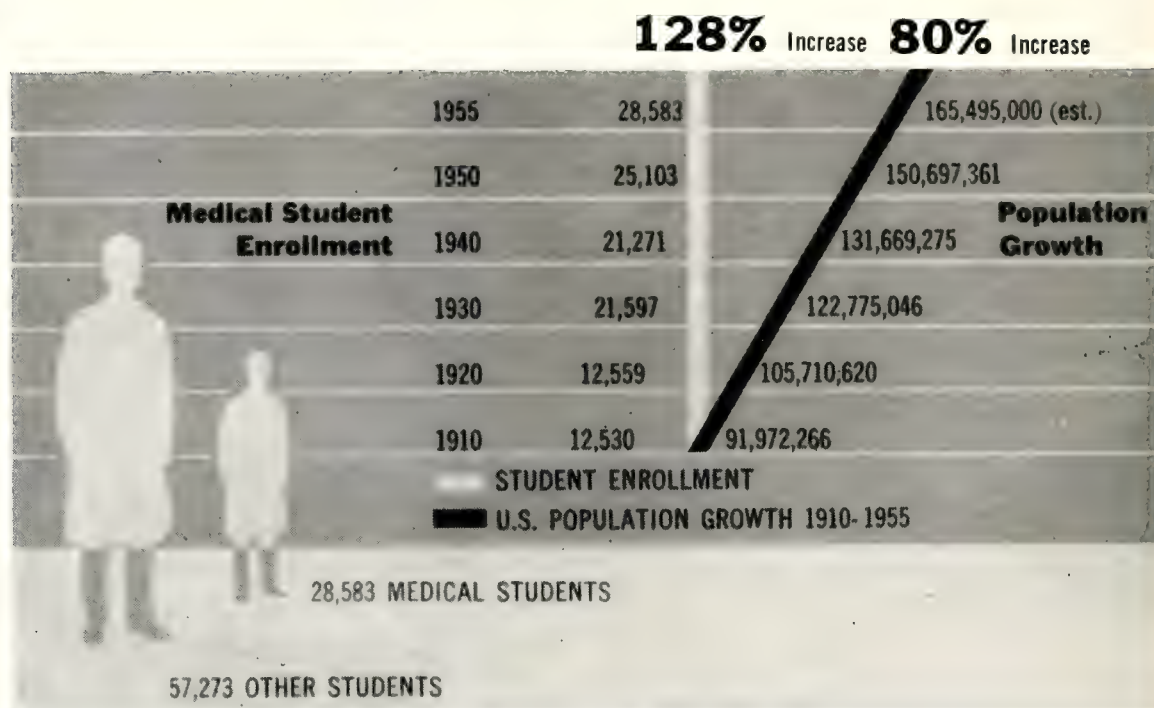


Fig. 2. Comparison of increase in medical student enrollment with population growth (1910-1955).

sons than did his predecessor 50 years ago (and actually leads a more strenuous life).

Restriction of enrollment

Now, do "medical schools keep down their enrollment in order to restrict competition among practicing physicians?"

The left portion of figure 2 shows the overall enrollment of medical schools in the United States during each decade from 1910 to 1955. Over this period there has been an increase of 128 per cent in medical school enrollment as compared with an increase in population of 80 per cent. During this same period, the physician's capacity and productivity have increased even more. The net result is that a great deal more medical service is being provided to more people than ever before in the history of this country.

Now, the American Medical Association has neither the authority nor the *desire* to control the size of the enrollment or the number of graduates of our medical schools. The number of students to be admitted is determined solely by the faculties, administrative officers, and governing boards of each school in accordance with its educational philosophy and its resources. People also ask, "Doesn't your local county medical society

limit the number of doctors permitted to come into the county and practice?" Absolutely not; so long as they are legally and professionally qualified, no county society limits the number of physicians who may enter practice in the area.

You hear that it is very hard to get into a medical school. Well, let's see.

Forty-seven thousand five hundred and sixty-eight applications to medical schools in 1954-1955 were made by a total of 14,538 persons; so each person applies on an average of three and one-third times. About 30 per cent of the applicants each year are "repeaters" who have made previous attempts; many of them have no real qualifications for medical school. Of the 14,538 who applied, 7,576 were admitted as freshmen in the fall of 1954. Actually some schools are finding it difficult to fill their freshman openings with first-rate applicants, and the problem in the near future may be a shortage of *qualified candidates* rather than a shortage of *teaching facilities*. The physical plants and faculties of our medical schools have been enlarged about 20 per cent since the end of the war, limited chiefly by the financing.

Another common fallacy is that "only 'A' students are admitted." This is not true, but

your chances are better if you have a "B" average in most cases. During last year only 17 per cent of the freshman medical school class had "A" averages in their premedical work; 69 per cent had "B's" and 14 per cent were "C" students. Character, leadership ability, and personality are equally important considerations in this matter. Well, how do the "B" and "C" students make out? They may find the going rough, but most of them have the tenacity to see it through. Last year, for example, only 5.5 per cent of the entire national freshman class was dropped, and the mortality is highest during the first year. Medical schools screen and interview each candidate thoroughly in an effort to determine whether or not he has a real aptitude for this profession.

Growth of schools

Some claim that our medical schools fail to grow with the times. The fact is that the number of *approved* medical schools in the United States increased from 66 in 1910 to 80 in 1954. This represents a growth of 21.2 per cent, and on the basis of new schools now under development the figure will be 30 per cent by 1960. Of course the productive capa-

city of the schools has increased even more than that, since we are now turning out more than twice as many graduates each year as we were in 1910. Substandard schools and "diploma mills" have been eliminated. Today all medical schools must be fully approved by the American Medical Association and the Association of American Medical Colleges. In order to be approved each school must meet the requirements for suitable classrooms, teaching hospitals, library, clinics, and a well integrated program of instruction. Now, actually all you need if *you* should want to start another medical school is about 15 or 20 *million* dollars! Put up a good plant, hire a good faculty, establish and maintain high standards, and we'll be glad to arrange approval and you can "be in business!" The only time a "ceiling" on enrollment is recommended by the A. M. A. and the Association of American Medical Colleges is when overcrowding of physical facilities endangers the quality of instruction.

Costs

Finally, a word about financing our medical schools. They do need more income; as with all other institutions, their operating costs have increased greatly. Please remember that every time there is a general round of wage and price increases in business and industry, it soon affects hospital costs, medical school costs, and the "overhead" of physicians' offices!

What does a medical education cost now? Tuition averages \$800 to \$1,000 per year. Add to that the cost of living and it's hard for a student to keep his expenses to less than \$2,500 per year. On the other hand, it costs the *schools* almost \$4,000 per year to teach one student.

The total operating sum budgeted by all the medical schools in this country is 159 million dollars for this year alone; they will actually spend more, but that is all they have. The difference will be supplied by organizations and industries which realize that a strong medical education system is a national necessity and will help support it. That realization gave birth to the National Fund for Medical Education in 1949, under the leadership of President Eisenhower, then president of Columbia University, former President Herbert Hoover, and S. Sloan Colt of New York. Working with our medical col-

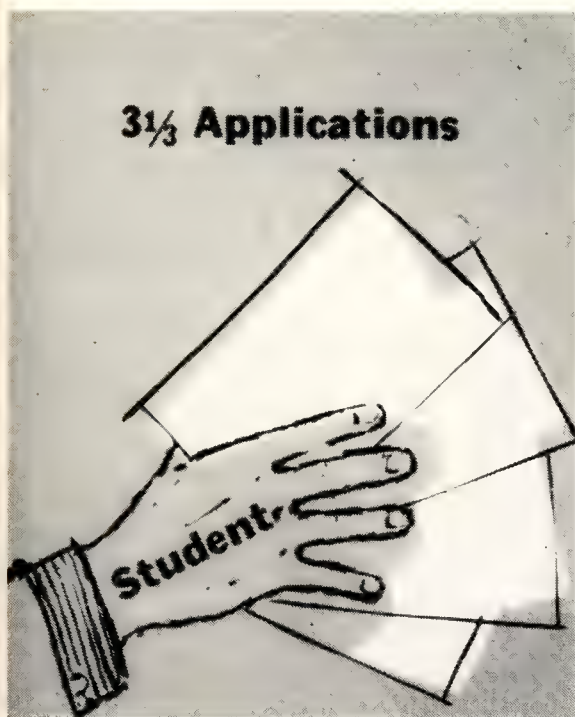


Fig. 3. Ratio of applicants to applications 1954-1955—3:3.3.

47,568 applications to medical schools
14,538 applicants to medical schools

leges and the American Medical Association, this group found that there was a 10 million dollar annual operating deficit at that time, so the fund was organized to solicit contributions from business and industry. The objectives of the fund are to:

1. Finance the training of competent physicians to meet the nation's needs
2. Encourage the advancement of medical standards in the United States
3. Preserve academic freedom and equality of educational opportunity in the medical schools
4. Make known the needs of medical education to the American public.

Chartered by Congress in 1953 as the agency authorized to seek private support for medical education in the United States, the N. F. M. E. is directing its first appeal to the public during Medical Education Week.

As a corollary effort, we physicians organized our own non-profit organization in 1950; it is known as the American Medical Education Foundation. Contributions from state and county societies and individual physicians have totalled 5 million dollars since 1951; this sum is being increased in many cases by adding a fixed amount to state society dues annually.

Our medical schools have *two* important functions: (1) the training of physicians; (2) the operation of research laboratories from which we get the life-saving drugs that have miraculously wiped out or virtually wiped out a number of diseases. Here is a fact which may be surprising: grants or gifts from outside agencies now finance 95 per cent of all the research being conducted. This amounts to 61 million dollars per year—two-thirds as much as the total amount budgeted for all basic medical school activities. Still it is not enough. Think what

we could accomplish in the way of research if this amount were doubled or tripled!

The Situation in North Carolina

Now, what's going on here in North Carolina? We are one of 10 states having three four-year medical schools; 757 full-time medical students, more than half being natives of this state, are enrolled. Between 150 and 200 physicians are graduated annually now; about 400 new M. D.'s are receiving advanced training in our medical school hospitals. Doctors who practice in other communities throughout the state also contribute time and effort to training their "future competitors." Student nurses, hospital interns, and residents in hospitals not associated with a medical school are taught by men in private practice who give this time and service *gratis*. In addition, physicians spend between three and six hours per week at hospital, county society, and committee meetings. Scientific papers are presented, actual case histories studied, and new methods of treatment are discussed. In addition to local meetings, they attend state, regional, and national meetings. In short, the doctor's education is never completed, and he must continue to study in order to render the best possible service.

Conclusion

We believe that our 81 medical schools are helping to ensure longer and healthier lives for Americans, and that progress made by American medical science is saving lives and winning friends abroad as well. The United States would probably not be the most prosperous nation in the world today if it were not also the healthiest, and medical education *keeps* us healthy.

Our medical schools are a true bulwark of our national welfare. They make possible better medical service where and when it is needed.

Because the President signed the military bill promptly, physicians in uniform received their pay raises starting May 1. The minimum boost (after two years' service) is \$50 per month, the maximum (after 10 years) \$150—Washington Office of the A.M.A.

The Treatment of Chronic Granulocytic Leukemia With Myleran

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and

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Myleran (1,4 - dimethanesulfonyloxbutane, or GT-41) is one of a group of sulfonic acid esters which Haddow and Timmis⁽¹⁾ found to be active against the Walker rat carcinoma 256. These compounds also were shown to have a fairly specific effect in decreasing the number of granulocytes in the peripheral blood of rats and human beings. Myleran, the butane compound, was the most effective of these esters. The first clinical use of this drug was reported by Galton in 1953⁽²⁾. He found it to be efficacious in chronic granulocytic leukemia, but ineffective in other types of leukemia.

Other observers⁽³⁾ have since corroborated Galton's findings that the drug has a specific depressant action on granulocytes, is beneficial in chronic granulocytic leukemia, but has no effect on myeloblastic relapses which occur in the course of chronic granulocytic leukemia, on other types of leukemia, on myelomatosis, and on nasopharyngeal carcinoma. Our experience with 12 patients who had chronic granulocytic leukemia is in agreement with the results reported by other observers.

Materials and Methods

Twelve patients who had chronic granulocytic leukemia were treated with Myleran. Six patients had previously received other types of treatment and 6 had not been treated. Age, sex, duration of the disease before therapy, and the period during which each patient was followed after start of treatment with Myleran are shown in table 1.

All patients in this series were seen by the authors at the North Carolina Baptist

Hospital, and the diagnosis was confirmed by bone marrow aspiration before treatment was started. The patients were treated largely on an outpatient basis. Some were followed in the hematology department or by private physicians at this institution, but about half, because of the distance involved, were referred to their local physicians for check-ups during and after treatment. Patients followed in this institution were seen at weekly intervals. At each visit physical examinations and studies of the peripheral blood, including hemoglobin determinations, total leukocyte counts and differential counts, were done. Platelet counts were performed only if the platelets appeared decreased in the peripheral blood smear. When patients were referred to their local physicians for treatment, the same procedures were recommended, as was the dosage of Myleran to be used.

All patients were given Myleran orally in tablet form in doses of 4 to 12 mg. per day. The majority received 6 mg. daily, and only one patient received more than 8 mg. per day at any time during the course of treatment. The drug was continued until a satisfactory clinical remission had been obtained and the total leukocyte count had been brought down to about 10,000 per cubic millimeter. The only exceptions were those cases in which it was thought that resistance to Myleran had developed, and 2 patients who did not have elevated leukocyte counts prior to therapy; in the latter Myleran was stopped because of leukopenia before any objective evidence of benefit was apparent. In the remaining cases the drug was discontinued after a satisfactory remission had been obtained, and was started again at similar doses when symptoms reappeared, or in one case when the leukocyte count was rising and the hemoglobin falling prior to the development of symptoms. Maintenance therapy has been tried in only 1 case in this series,

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1,4-Dimethanesulfonyloxybutane is available under the name of "Myleran" from Burroughs Wellcome & Co. (U.S.A.) Inc.

*Trainee, National Institutes of Health, U. S. Public Health Service.

Table 1
Results of Therapy With Myleran

Case	Sex, Age (Years)	Duration Prior to Therapy (Months)	Previous Therapy	Clinical Response	Spleen Size Below Costal Margin (cm.)			Hgb. Rise (gm per 100 cc)	Duration (Days)	Total Dose (mg.)	Duration Remission (Months)	Outcome, Follow-Up (Months)	Remarks
					Before Therapy	After Therapy	Spontaneous						
1	F 36	61	G.M.P., TEM† P-32, X-ray, splenectomy	Good	Surgically absent			1.0	117	912	1	Alive 19	No complete remission, but on repeated courses of Myleran patient has not required transfusion, whereas prior to therapy she required 1 unit per month
2	F 54	3	None	Excellent	Palpable	Not palpable		3.8	92	312	13	Alive 16	Continues in remission; started on maintenance therapy 3 months after initial course
3	M 43	61	X-ray	Excellent	12	3		4.7	61	272	3	Dead 15	Good response to three courses; resistance to Myleran and myeloblastic relapse during fourth course
4	M 49	9	X-ray	Poor	6	2		None	99	522	None	Dead 3½	Myeloblastic relapse during third month of therapy
5	M 57	10	None	Excellent	6	Not palpable		3.6	97	388	6	Dead 10	Myeloblastic relapse at end of remission
6	M 32	23	X-ray	Excellent	Below umbilicus	Not palpable		4.7	117	702	9	Alive 13	Continues in remission
7	F 36	3	None	Fair	7	No change		2.1	305	1870	1	Alive 10	Only partial remission; Myleran discontinued when resistance developed, no evidence of toxicity
8	M 46	75	X-ray cortisone A.C.T.H.	None	10	No change		Fall	33	132	None	Dead 2½	Thrombocytopenia, myelofibrosis, and normal total leukocyte count prior to therapy
9	M 46	6	None	Good	2	Not palpable		Unknown	125	760	1	Alive 6	Subjective improvement, hematologic response unknown because of failure to return for follow-up visits until evidence of excessive dosage was present
10	F 47	3	None	Good	Below umbilicus	Not palpable		2.8	60	360	3	Alive 5	Leukopenia, thrombocytopenia, and anemia 3 months after initial course, possible excessive dose
11	F 38	28	None	None	Not palpable	Not palpable		Fall	20	120	None	Alive 2	Leukopenia and severe anemia prior to therapy
12	F 58	9	X-ray	Poor	8	No change		Fall	53	318	None	Dead 1½	Thrombocytopenia and spinal cord involvement prior to therapy

* 6-Mercaptopurine

† Triethylenemelamine

‡ See "Remarks"

and this patient has been receiving doses ranging from 2 mg. twice weekly to 2 mg. every other day.

Results

Seven patients in this series are living and 5 are dead. The surviving patients have been followed for periods of 2 to 19 months since the start of therapy (table 1). Of these 7 survivors, 3 (cases 2, 6, and 10) had good remissions; 1 (case 1) had an incomplete remission but was benefited considerably; 1 (case 9) received a toxic dose of the drug; 1 (case 7) showed some response and then became resistant to Myleran; and 1 (case 11) had no response. The results of therapy in each case are described in table 1.

In the 5 patients who are dead the survival periods ranged from 1½ to 15 months after the start of therapy (table 1). Two of these patients (cases 3 and 5) had excellent remissions initially, and the former responded well to second and third courses of Myleran; but both subsequently died in myeloblastic relapses. One patient (case 4) had a minimal response initially, but then had a myeloblastic relapse while on the drug. Two patients (cases 8 and 12) obtained little or no benefit.

The patients who responded favorably to Myleran consistently showed a marked subjective improvement in strength, appetite, and sense of well-being two to three weeks after beginning therapy—ordinarily before any objective effect of the drug was apparent. This response was repeated when the patients were given successive courses of therapy.

In every case Myleran produced a fall in the total leukocyte count, which ordinarily started shortly after subjective improvement was noted and continued gradually as long as therapy was maintained. This fall in the total leukocyte count was due to a decrease in granulocytes, particularly the immature granulocytes. In 3 patients immature granulocytes completely disappeared from the peripheral blood. After the drug was discontinued, the total leukocyte count ordinarily started to rise again within one to eight months.

One of the more gratifying effects noted in patients who responded favorably was the rise in the hemoglobin level. This usually started three to four weeks after the beginning of therapy and continued as long

as the drug was administered. In one patient the hemoglobin continued to rise for two months after Myleran had been withdrawn. Generally the hemoglobin level would start to fall very slowly within two to four months after treatment was stopped. The hemoglobin of the patient on maintenance doses of Myleran has remained within normal limits.

In patients who had remissions, the size of the spleen decreased gradually during the period of therapy. In 3 cases the spleen, which extended below the umbilicus prior to therapy, became much smaller, and in 2 of these could no longer be palpated. Four patients had mild to moderate splenomegaly initially; the spleen became smaller in each case and impalpable in 3. No regression of splenomegaly occurred in the 3 patients who did not respond to Myleran, or in 1 patient who had only a partial remission.

The duration of therapy and the total dose of Myleran required to produce a remission varied considerably from patient to patient. In those who responded, the duration of the initial course ranged from 60 to 117 days and the total dosage from 272 to 912 mg. One of our patients was on continuous therapy for 305 days, and received 1,870 mg. of Myleran without obtaining a complete remission.

Comment

Our limited experience with Myleran leads us to believe that this drug has a place in the treatment of patients with chronic granulocytic leukemia who have elevated leukocyte counts. These patients show a fairly consistent response to the drug. The first improvement to be noted is in the patient's sense of well-being. This is followed by a gradual fall in the leukocyte count, especially in the number of immature granulocytes, together with a rise in the hemoglobin and a gradual decrease in the size of the spleen. Remissions may last for several months, during which time an adequate hemoglobin level is maintained and the patient is free from symptoms.

Myleran is of no value in patients who have a myeloblastic relapse. In our experience it was also without appreciable benefit in 3 patients with thrombocytopenia, leukopenia, or both. In the 2 patients without leukocytosis the drug had to be discontinued after they had taken only

a relatively small amount (120 and 132 mg.), because of further fall in the leukocyte count. The patient with severe thrombocytopenia continued to have hemorrhagic manifestations in spite of Myleran and cortisone. On the basis of these findings, we would suggest that patients without leukocytosis, and probably patients with thrombocytopenia, are not suitable candidates for the use of Myleran.

Myleran has a rather specific depressant effect on granulocytes. Petrakis and his co-workers^(3f) believed that the drug probably produced this effect by suppressing granulopoiesis. They based this conclusion on the failure to find evidence of destruction of granulocytes in bone marrow aspirates of a number of patients treated with Myleran.

It has been shown that Myleran in large doses does depress other formed elements in the blood. In experiments on normal individuals, Galton^(2a) found that it produced a decrease in monocytes and platelets as well as granulocytes. Bollag^(3b), working with rats, found that doses of 15 mg. per kilogram of body weight caused a decline in lymphocytes, platelets and erythrocytes, as well as granulocytes.

Myleran apparently produces no side-effects or toxic manifestations other than thrombocytopenia and possibly pancytopenia. In one of Galton's original 19 patients^(2a) and in 3 of Petrakis' 21 patients^(3f), thrombocytopenia attributed to Myleran developed. All these patients were given large doses (100 to 150 mg.) over a period of one to six days. On a schedule of small doses given over a longer period the danger of this complication is greatly reduced, if the patients are followed carefully. One of our patients (case 9) demonstrates the toxicity of the drug and the importance of careful supervision. This patient, after being referred to his local physician for treatment with Myleran, returned for a few follow-up visits. He then failed to return for further check-ups, but continued to take the drug. After taking 750 mg. of Myleran over a period of 125 days, he appeared with thrombocytopenia, anemia, granulocytopenia, and no immature cells in the peripheral blood. We attributed these findings to Myleran, although the patient had also received an unknown, but probably small, amount of

roentgen therapy to the right hip during his absence.

Most observers now agree that the method of choice for the administration of Myleran is to give small doses (4 to 8 mg. per day) until the desired response is obtained. To some of his original patients Galton gave doses of 100 to 150 mg. over a period of one to six days. In a subsequent paper⁽⁴⁾ he recommended abandoning this method because of the variability of response and the occasional occurrence of toxic manifestations. We have personally had no experience with large doses of Myleran.

The advisability of giving maintenance doses of Myleran after a remission has been induced has not yet been determined. Theoretically, the chief dangers would be the possibilities of bone marrow failure and the more rapid development of resistance to Myleran. Galton⁽⁴⁾ reported no cases of bone marrow failure in a number of patients kept on maintenance therapy; however, 3 patients did become resistant to the drug during the second year. It was impossible to say whether or not the use of maintenance doses had hastened the development of resistance. Our 1 patient on maintenance therapy has done quite well over a period of 13 months.

It has been repeatedly demonstrated that Myleran is of no benefit in myeloblastic relapse, and Bollag^(3b) has even suggested that Myleran may have produced a myeloblastic relapse in one of his patients. Galton⁽⁴⁾ also noted that 2 of his 31 patients had a myeloblastic relapse while receiving the drug. This same sequence of events occurred in 2 of our patients, suggesting that Myleran may perhaps play a part in the development of myeloblastic relapses. Because of the nature of the disease under treatment, however, it would be very difficult to establish a cause-and-effect relationship.

A point worthy of note is that 1 of our patients (case 2), while on maintenance therapy with Myleran, began to have lower abdominal pain, low grade fever, and leukorrhea, culture of which revealed no pathogens. At this time, however, Papanicolaou smears of the cervix revealed malignant cells on two separate occasions. After three weeks her symptoms subsided, and a dilatation and curettage together with a

cervical biopsy failed to reveal any evidence of carcinoma. Since that time maintenance therapy with Myleran has been continued for four more months, and a recent Papanicolaou smear of the cervix was negative.

It is of interest in this regard that Shimkin⁽⁵⁾ was unable to demonstrate that Myleran had any carcinogenic activity in mice. He stated, however, that one would expect some carcinogenic effect from this drug, because of its close chemical relationship to the nitrogen mustards. He also quoted Haddow as stating in a personal communication that experiments with selected members of the dimethane sulfonyloxyalkane series, of which Myleran is one member, strongly suggest that this drug has carcinogenic activity. The possibility of a carcinogenic effect should be kept in mind when patients are being treated with this drug.

It is, of course, too early to compare the effects of Myleran with those produced by irradiation in the treatment of chronic granulocytic leukemia. However, Myleran does seem to produce a greater and more consistent response than other drugs used in the treatment of this disease. Myleran has at least one advantage over roentgen therapy; it is an easily administered medication which can be given on an outpatient basis. Furthermore, Myleran has been found to produce good remissions in some patients who have shown little or no response to irradiation⁽⁴⁾.

Summary

Myleran is a drug of relatively recent origin which has been found to have a beneficial effect on the course of chronic granulocytic leukemia. It consistently produces a decrease in the number of circulating granulocytes, probably by depressing granulopoiesis. In excessive doses, however, it may cause a decrease in other formed

elements of the blood. Thus the chief toxic manifestation is thrombocytopenia. The drug has been shown to be of no benefit in other types of leukemia or in the myeloblastic phase of chronic granulocytic leukemia.

Twelve patients with chronic granulocytic leukemia were treated with Myleran in doses of 4 to 12 mg. per day until an adequate effect had been obtained. Good to excellent responses were obtained in 7 patients with remissions lasting up to 13 months. Three patients who had leukopenia, thrombocytopenia, or both were not benefited appreciably by the drug. In patients who responded favorably there was subjective improvement, a fall in the leukocyte count, a rise in the hemoglobin level, and a decrease in the size of the spleen.

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Private-profit nursing homes, hospitals and some other medical facilities soon will have an opportunity to obtain U. S. loans from the Small Business Administration. The limit is \$250,000 per project, the interest rate usually 6 per cent—Washington Office of the A.M.A.

Office Management of Urinary Tract Infections

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The present availability of a wide variety of chemotherapeutic and antibiotic drugs has influenced greatly the management of urinary tract infections. Most of the acute as well as the chronic infections can now be handled on an outpatient basis. It is our purpose here to present a method for the office management of urinary tract infections based on the study of over 500 ambulatory patients seen during the past four years.

Incidence

A majority of the patients seen in urologic practice ultimately have to be treated for infection. Excluding "chronic prostatitis," 80 per cent of those treated are female—a 4:1 ratio.

Etiology

A discussion of the etiology of urinary tract infection should include the bacteriology. Broad spectrum antibiotics have reduced but not eliminated the need for urine cultures. In conjunction with sensitivity studies cultures are of value, although not to the degree once thought. The infecting organism is most often a gram negative bacillus as shown in the following table.

Table 1
Urine Cultures

Organism	No.	Per Cent
<i>Eschericia coli</i>	419	41.1
<i>Staphylococcus</i>	229	22.4
<i>Aerobacter aerogenes</i>	186	18.2
<i>Proteus</i>	105	10.3
<i>Pseudomonas</i>	48	4.7
Tuberculosis	4	0.4
Miscellaneous	28	2.9
Total	1,019	100.0

Staphylococcus has increased significantly in the past few years, probably because of the emergence of sulfa and penicillin resistant strains. Tuberculosis now constitutes less

than 0.5 per cent, and no typhoid bacilli have been identified.

The manner in which organisms gain access to the urinary tract is usually not known, but certain contributing factors are apparent. The three most important are (1) stone, (2) stasis, and (3) "focal infection."

It is not unusual to find a stone, giving few or no symptoms, as the only pathologic abnormality present in a patient with persistent infection. In such cases the infection often clears after removal of the calculus. Figure 1 shows a bladder stone associated with persistent pyuria, which cleared following a vesicolithotomy. Figure 2 is a roentgenogram of the kidney, ureter and bladder, showing bilateral staghorn calculi in a patient who was symptom-free, pyuria having been discovered on routine examination.

Stasis is defined as obstruction to the outflow of urine anywhere along the urinary tract from the external meatus to a calyx in the kidney. Strictures, stones, tumors, anomalous vessels, and congenital anomalies such as ureterocele and horseshoe kidney are a few of the many causes.

The "focal infection" theory has been criticized severely in recent years—no doubt justifiably so in some instances. However, many urinary tract infections are almost certainly secondary to foci elsewhere. Infections in the gallbladder, bowel, vagina, cervix, prostate, and accessory urinary tract glands are thought to be the source of many infecting organisms.

Diagnosis

In most instances it is not too difficult to diagnose correctly the presence of urinary tract infections. In the acute form the presenting symptoms usually suggest infection and the organ involved; one or more of the following symptoms is usually present: disturbance of urination, with or without hematuria; pain referred to the organ involved, and chills and fever. In chronic infections symptoms are usually less severe

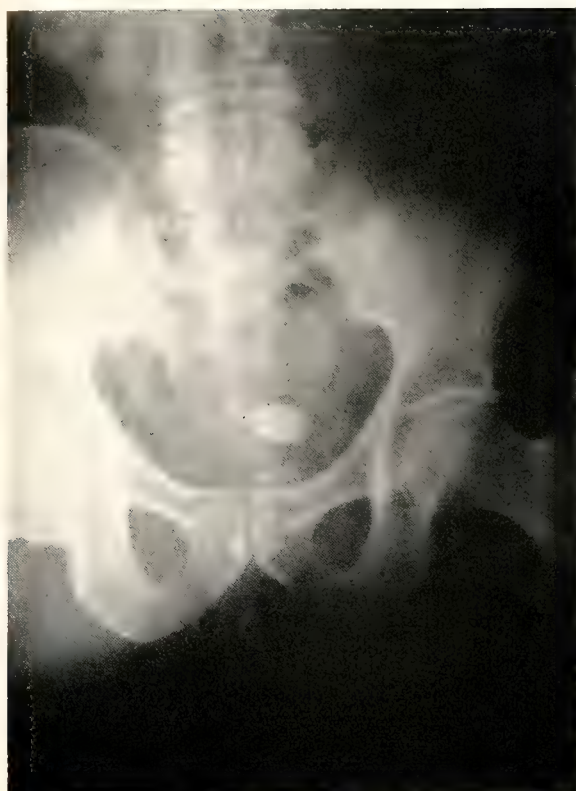


Fig. 1 Bladder calculus.

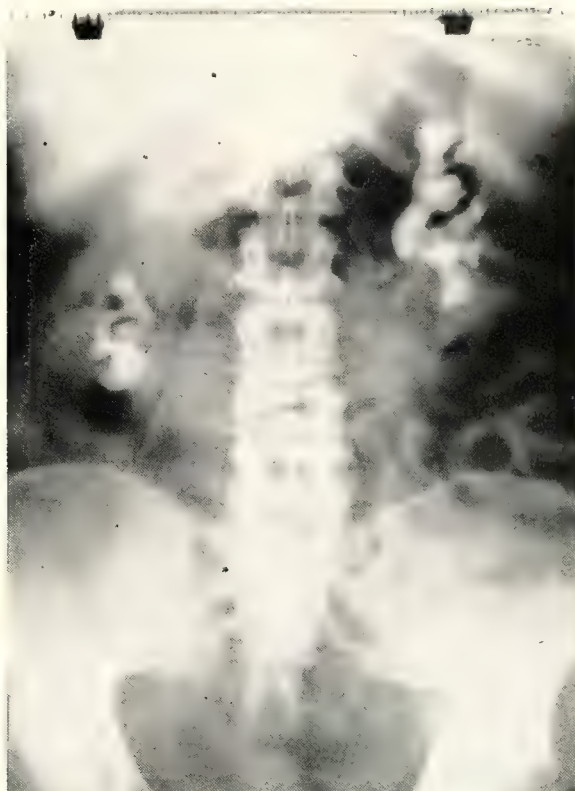


Fig. 2 Bilateral staghorn calculi.

or may be absent entirely, there being present nothing more than an asymptomatic pyuria.

In order to make a diagnosis of an infection of the urinary tract, it is necessary to demonstrate pus or bacteria in the urine. There are a few exceptions to this rule which need not be discussed here. By pyuria is meant more than one or two blood cells per high dry microscopic field in urine that has been centrifuged for about two minutes at approximately 1,200 revolutions per minute, the rate of the average centrifuge running at one-half speed. In the female the specimen should be obtained by catheterization for obvious reasons. In the male the two-glass test is very helpful in determining whether the upper or lower urinary tract is involved. Stained smears of the urinary sediment are easy to make and are often invaluable. Methylene blue can be used if time and facilities are not available for doing gram stains.

Other diagnostic tests that are not indicated routinely are available on an outpatient basis. Cystoscopy, KUB roentgenograms and pyelograms, and urine cultures are done in

most instances only if the infection recurs or fails to respond to treatment. Sensitivity studies may be helpful, but are not necessary routinely. Intravenous pyelograms are of value, but their limitations should be kept in mind. Figure 3 demonstrates a calyceal diverticulum by retrograde pyelography; an intravenous pyelogram done previously was reported normal. A cystoscopic examination combined with retrograde pyelography is not difficult to do and carries a high degree of diagnostic accuracy in experienced hands. We do not do this examination routinely; our indications are as follows:

1. Recurrent or persistent infections
2. Certain acute severe infections (usually in hospital patients) not responding to treatment.
3. Pyuria in male children.

Without attempting to be complete, a few points on the differential diagnosis seem desirable. Infections are very often secondary, and the possibility of other disease within and without the urinary tract must be kept in mind. A carbuncle of the kidney or a perinephritic abscess may not be associated with



Fig. 3. Calyceal diverticulum of the left kidney.

pyuria. Vaginitis—bacterial, monilial and trichomonal—is often confused with cystitis; a catheterized specimen of urine and a vaginal smear usually indicate the correct diagnosis. Hunner's ulcer, seen most often in the female but occasionally in the male, resembles cystitis. A pinworm vaginitis in female children and obstruction of the bladder neck in the male may be confused with cystitis.

Treatment

The initial treatment of most urinary tract infections is essentially the same, depending on the severity rather than the organ involved. The systemic manifestations—chills and fever—require bed rest. Occasionally the patient must be hospitalized if the infection is overwhelming or does not respond to treatment promptly.

Treatment of an ambulatory patient with pyuria not requiring hospitalization can be started without making special studies. With few exceptions, one of the newer sulfonamides—Thiosulfil, Gantrisin or Elkosin—should be used first. The recommended dosage is two tablets four times daily for eight

doses, then one tablet four times daily for one week. Multiple sulfonamides do not appear to have any advantage in this situation. Examination of several thousand specimens of freshly voided urine from patients taking one of the above drugs has shown no crystalluria produced by the drug. The addition of Serenium or Pyridium to the sulfonamides may be of value in some chronic cases, but has little if any sedative effect on the acutely inflamed bladder. Another reason for employing sulfonamides initially is the low cost—about 5 cents per tablet as compared to 50 cents for most of the antibiotics and Furadantin.

As a rule, if the patient's symptoms are still present at the end of 48 hours, if the pyuria persists for a week, or if the patient is known to be allergic to the sulfonamides, Furadantin, 100 mg. four times daily for one week, is prescribed. This drug should be taken immediately after meals and with milk at bedtime in order to reduce the gastrointestinal irritation. Nausea occurs in about 15 per cent of patients receiving Furadantin, and vomiting necessitates discontinuing the drug in about one third of these cases. Thorazine, 10 to 25 mg. before meals and 30 minutes before the bedtime dose, reduces the incidence of nausea and vomiting. No serious reactions to Furadantin have been observed. If Furadantin is not tolerated, then tetracycline, 250 mg. four times daily for one week, should be given. The bacteriologic spectrum of tetracycline is similar to Furadantin, but serious gastrointestinal reactions occur often enough to preclude routine use. Perhaps Mysteclin, which is a combination of tetracycline and mycostatin, will show fewer reactions; it is still too soon to tell. Chloromycetin has a similar spectrum; when used over a short period of time it is probably no more toxic than other broad spectrum antibiotics. Polymyxin, neomycin, and streptomycin must be given in the hospital and are indicated in only a few selected cases. Penicillin is rarely the drug of choice in the treatment of urinary tract infections, because the organism is usually a gram-negative bacillus and most of the cocci have become resistant to penicillin. Mandelamine, 1 Gm. four times daily for three to four weeks, is of value in some chronic urinary tract infections that fail to respond to other drugs.

Acute infections should show improvement in 48 hours and chronic ones in one to two

weeks. If not, the second drug of choice and then the third, if necessary, should be tried. Lack of improvement after the second or third drug has been tried, persistence of the pyuria beyond two weeks, or recurrence of the infection calls for further investigation. Roentgenograms, including intravenous pyelograms, may show the pathologic process, but a diagnosis of a nonobstructive chronic urinary tract infection should not be made until cystoscopy, urethroscopy, and retrograde pyelograms have been done. Urine cultures and sensitivity studies probably should be done in all infections not responding to treatment, especially when surgery is contemplated. However, it is often a matter of trying different drugs, singly or in combination, until the infection is either cured or controlled. Some patients with incurable chronic infections can be kept free of symptoms and show little or no pyuria on maintenance doses of a sulfonamide or Furadantin. We have 11 such patients who have been taking one or two tablets of Gantrisin or Thiosulfil daily for as long as five or six years. Each time the drug is stopped there is a recurrence. Three patients who could not be controlled with the sulfonamides are kept symptom-free by taking one Furadantin tablet daily. Infections during pregnancy often require a maintenance regimen.

All patients who have been treated for urinary tract infections should be followed for at least six months to rule out an asymptomatic persistence or recurrence of the infection. Depending on the response to treatment, they should be seen every two to six weeks after the symptoms subside. Urine cultures at the time of follow-up visits are desirable but not absolutely necessary in all cases.

In acute infections, highly seasoned foods and alcohol should be avoided and fluids forced until there is definite symptomatic improvement. Sexual intercourse is likely to aggravate an acute process in the lower urinary tract. Soft drinks and most foods do not appear to influence the symptoms or the course of the infection.

A few of the more common infections should be discussed in a little more detail. So-called "honeymoon cystitis" in the newly married woman occurs with the sudden onset of frequent painful urination with or without hematuria and usually responds to the

sulfonamides. It may recur several times during the first year. A complete study is indicated if recurrence occurs after the first year.

In acute cystitis in the male a stained smear of the urinary sediment should be made. No organism will be found in about 25 to 30 per cent of the cases, the infecting organism probably being a virus. In the absence of bacteria, tetracycline should be given initially, because Furadantin and the sulfonamides are rarely effective. If bacilli are found, a sulfonamide is the drug of choice; if cocci (excluding *Neisseria gonorrhoeae*) are present, Furadantin should be given. If a stained smear is not made, tetracycline is the drug of choice.

Prostatitis can be discussed under the heading of urinary tract infections, since the bladder and urethra are usually involved sooner or later. Acute prostatitis is treated in the same manner as acute cystitis in the male. Stained smears of the urinary sediment should be made to determine the drug of choice; sedatives and sitz baths are often indicated. Furadantin may be effective in chronic prostatitis, but it is usually necessary to give prostatic massages and instillations also.

"Chronic urethritis" in the female is often discovered during treatment for an acute cystitis that usually accompanies it from time to time. After the acute symptoms subside, urethral dilatations and instillations are carried out for a period. Furacin urethral suppositories inserted after each dilatation appear to be of much benefit.

In gonorrhea penicillin—400,000 to 600,000 units given intramuscularly—is still the best drug. In individuals who are allergic to penicillin, tetracycline can be used. A serologic test should be done before treatment and repeated three months, six months, and a year afterward to be certain a luetic infection has not been masked.

Summary

This discussion can be summarized by listing a few important general principles of diagnosis and treatment and by giving some impressions of the drugs available for treatment of urinary tract infections.

General Principles

1. Determine whether pyuria is present. Catheterize the female; use the 2-glass test in the male.

2. Use the drug of choice but change to another if there is no response in 48 hours (in acute cases) or if pyuria persists after one week. Do not undertreat; continue the medication for at least one week, and longer if necessary.

3. Follow cases for at least six months.

4. Make a complete urologic study for persistence or recurrence of the infection in all patients and with initial infection in all *male children*.

Drugs

1. Sulfonamides: Thiosulfil, Gantrisin and Elkosin. These are the drugs of choice initially in most cases. They have a broad spectrum, low toxicity, and are inexpensive.

2. Furadantin (100 mg. given four times daily for one week). Use if the sulfonamide fails, particularly in chronic infections. Nausea occurs in 15 per cent and vomiting in 5 per cent of the cases, but no serious reactions have been reported. They are expensive.

3. Broad spectrum antibiotics (250 mg. four times daily). Aureomycin, Terramycin, Tetracyclin, Achromycin, Panmycin, Mystecilin,

etc. These drugs occasionally cause severe gastrointestinal disorders. They are expensive.

4. Chloromycetin (250 mg. given four times daily for one week). Use if there is no response to other drugs. Occasionally causes gastrointestinal complication. Suppression of bone marrow reported on prolonged use. It is expensive.

5. Mandelamine (1 gm. given four times daily for four to six weeks). Possesses low order toxicity. Inexpensive.

6. Polymyxin, streptomycin and neomycin. These drugs are of value in selected hospital cases. Moderate toxicity and expensive.

7. Pyridium and Serenium. Bladder analgesic only. Inexpensive and probably non-toxic.

8. Sulfonamide mixtures. These probably hold no advantage over single sulfonamides. Inexpensive.

9. Bladder mixtures, alkaline and acid, with and without phenobarbital. These are inexpensive, possess low toxicity, and probably are of value in an agitated patient with an irritated bladder.

What does the average doctor do on his vacation. According to survey results reported in the June issue of *Medical Economics*, he takes three weeks off, drives 1,500 miles, and spends nearly \$1,000.

"Almost half the doctors surveyed took at least two vacations last year," the magazine reports. "About 15 per cent took three or more." And another 15 per cent took no vacation at all.

Most vacationing doctors travel by car *Medical Economics* found. Some "70 per cent covered 1,000 miles or more. More than half this group put at least 2,500 miles on the speedometer."

The biggest proportion likes to go to the seashore. Another good-sized group prefers the mountains. The M.D.s' favorite vacation areas are Florida, New England, and the Rocky Mountains.

"Fishing is far and away the favorite vacation diversion," says *Medical Economics*. "It draws top rating from 25 per cent of the respondents. Sight-seeing ranks second, followed by swimming, loafing, and golf."

Naturally, the doctor has a hard time *keeping* his vacation a vacation. Many people want free medical advice. To avoid this pitfall, reports the magazine, "almost half of all the doctors who take vacations travel incognito."

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

JULY, 1956

STATE MEDICAL SOCIETY TO MEET IN ASHEVILLE IN 1957

Since 1944 every meeting of the Medi-
cal Society of the State of North Carolina,
with one exception, has been held in Pine-
hurst, with the Carolina Hotel as head-
quarters. Its central location, good food
and service, and the freedom from distract-
ing counterattractions, made it the choice
of the nominating committee year after
year. Many members, especially those who
live in the eastern part of the state, will be
disappointed that the 1957 meeting will not
be held in Pinehurst, and perhaps many
who did not attend the last annual meeting
will wonder why the change was made. Here
is the explanation.

After the House of Delegates in 1955
voted to admit non-white members as scien-

tific members, the management of the Caro-
lina Hotel notified the executive secretary
of the State Society that if a single Negro
were made eligible to come into the hotel,
the reservations for the next meeting would
be cancelled. Since the issue did not arise
before the 1956 meeting, the meeting was
held in Pinehurst as scheduled. Before the
1957 meeting, however, it will be necessary
to prepare for our Negro colleagues. Since
the Carolina Hotel management reaffirmed
its stand after the 1956 meeting, it was
necessary to find another meeting place,
and Asheville has been selected, with May 5
to 8 as the time, and the Battery Park and
George Vanderbilt Hotels, with the audi-
torium between them, as headquarters.

Fortunately the management of both
these hotels, which are under the same
ownership, is quite willing to admit Negroes
to the scientific and business sessions. The
combined capacity of these two hotels is
considerably greater than the Carolina's,
and the auditorium between them offers ex-
cellent facilities for the scientific and tech-
nical exhibits, as well as for the annual
dinner.

* * *

ALCOHOL OR ACCIDENT?

Last month's issue of this JOURNAL told
of the compromise counties' rights form of
a medical examiner system to replace the
antiquated coroner system. A dramatic il-
lustration of the value of an effective medi-
cal examiner system occurred recently,
when a bridegroom fell from an airplane
the day after he was married. The inevitable
question arose as to how it happened. The
charge has been made that he had been
drinking heavily before boarding the plane.
The widow denies this.

Now she is suing the air line company,
and a large sum of money is at stake.
An "inquest" was ordered 12 days
after the accident—too late to be of any aid
in determining whether or not the man was
intoxicated.

Apparently it had not occurred to any
of the interested parties that an examina-
tion of the dead man's blood or liver soon
after the accident would have given definite
proof as to whether or not he had enough
alcohol concentration in his system to cause
intoxication, and so settled the matter be-
yond dispute.

It is now too late to make such an ex-

amination, but it is not too late to build up increasing pressure for a statewide medical examiner system, and for the recognition of the alcohol concentration test as a reliable means of determining whether or not a man is drunk.

* * *

THE AMERICAN MEDICAL ASSOCIATION

The one hundred fifth annual meeting of the American Medical Association was held in Chicago, June 11 to June 15. Unfortunately the intense heat that prevailed during the entire meeting made a veritable oven of the Navy Pier, which housed the exhibits, both scientific and technical, and also some of the most important conferences. A few visitors sensibly wore sport shirts, but most of those in attendance sweltered in conventional shirts and ties. Most coats were carried over the owners' arms, although a few were worn. By contrast, the section meetings held in air-conditioned hotels were far more popular.

The House of Delegates met comfortably in the ballroom of the Palmer House. As usual, it had a busy time. One attending a session of this body can hardly fail to be impressed by its efficiency and its democracy. Its transactions will be published in successive issues of the *Journal of the A.M.A.*, but a few of its major actions may be of interest to our readers.

Dr. David B. Allman, of Atlantic City, was unanimously chosen as President-Elect. Dr. Allman made many friends as a guest at the last meeting of our State Society. His address, "Medicine in a Changing World," delivered before the first general session, appears as the leading article of this issue of the JOURNAL. Dr. Allman has been a trustee of the A.M.A. since 1951, and was chairman of the important Committee on Legislation.

The selection of the veteran, Dr. Walter L. Bierring, for the Distinguished Service Award was another very popular choice.

The report of the Committee to review the work of the Joint Commission on Accreditation of Hospitals was approved by the House of Delegates. Among the recommendations of the Committee were:

1. Accreditation of hospitals should be continued.

* * *

4. Physicians should be on the administrative bodies of hospitals.

5. General practice sections in hospitals should be encouraged.

6. Staff meetings required by the Joint Commission are acceptable, but attendance requirements should be set up locally and not by the Commission.

* * *

15. The American Medical Association should conduct an educational campaign for doctors relative to the functions and operations of the Joint Commission.

The House also approved a reference committee suggestion urging that the Joint Commission study:

1. The problems of the exclusion from hospitals and arbitrary limitation of the hospital privileges of the general practitioner, and

2. Methods whereby the following stated principles may be achieved:

"The privileges of each member of the medical staff shall be determined on the basis of professional qualifications and demonstrated ability.

"Personnel of each service or department shall be qualified by training and demonstrated competence, and shall be granted privileges commensurate with their individual abilities."

Another important action was the approval in principle of a program to evaluate graduates of foreign medical schools seeking hospital positions in the United States.

The proposed plan calls for establishment of a central administrative organization to evaluate the medical credentials of foreign trained physicians desiring to serve as interns or residents in American hospitals. Basic requirements would include satisfactory evidence of at least 18 years of total formal education, including a minimum of 32 months in medicine exclusive of any time which in this country would be considered as premedical study or internship. Applicants with satisfactory credentials then would take a screening examination to determine their medical knowledge and their facility with the English language. Successful applicants then would be certified to hospitals and other interested organizations, with the approval of the foreign-trained physician concerned.

One of the most controversial issues was the problem of private practice by medical school faculty members. This has been under study by the Committee on Medicine and Related Facilities of the Council on Medical Service. The House adopted a Council report which stated

that it shall be the policy of the American Medical Association that funds received from the private practice of medicine by salaried members of the clinical faculty of the medical school or hospital should not accrue to the general budget of the institution and that the initial disposition of fees for medical service from paying patients should be under the direct control of the doctor or doctors rendering the service.

This Council report also said:

it is not in the public or professional interest for a third party to derive a profit from payment received for medical services, nor is it in the public or professional interest for a third party to intervene in the physician-patient relationship.

Another important resolution adopted by the House read as follows:

Whereas, In recent years, events have indicated the necessity for a closer liaison between the pharmaceutical manufacturer and the American Medical Association; and

Whereas, In view of the tremendous number of new drugs being developed and the expanding research programs in medical colleges, clinics and hospitals being financed by the drug industry, it is imperative that the manufacturer and the medical profession develop cooperatively guiding principles which will protect the American people from being subjected to the premature release of information pertaining to new products or techniques; and

Whereas, Competition within the pharmaceutical industry has become extremely keen so that in the advertising of their products drug manufacturing firms have been forced into the expenditure of larger and larger sums of money and in increasingly broader fields of advertising; therefore be it

Resolved, That the Board of Trustees of the American Medical Association appoint a liaison committee to meet with representatives of the pharmaceutical manufacturers to accomplish this objective.

North Carolina was fairly well represented at this meeting, with 55 physicians registered. Dr. Elias Faison was introduced together with the other new members of the House of Delegates. Dr. Frank Lock, of Winston-Salem, was chairman of the Section on Obstetrics and Gynecology.

The total registration was 27,115, with 9,969 physicians.

EDITORIAL NOTES—A.M.A.

Dr. Dwight H. Murray's inaugural address, published in the *J.A.M.A.* for June 23, was an eloquent plea for combining scientific medicine with the personal interest felt in his patients by the old-time family doctor. Dr. Murray could make this plea in all sincerity, since he himself has been a general practitioner for more than 35 years.

* * *

The high light of the State Presidents' Conference on Sunday afternoon was the address, illustrated by lantern slides, of Mr. Henry Viscardi, Jr.—“Workers in Wheelchairs.” Mr. Viscardi, who himself walks on artificial limbs, formed a corporation eight years ago which employs only physically handicapped people. The first year there were only a few employees, but a small profit was earned. Last year 252 employees brought in a gross income of \$1,200,000.00.

* * *

It was good to see Drs. Elmer Hess, Warren Furey, David Allman, and George Lull—all guests of our State Society at its last meeting. It was gratifying to hear them all praising our State Society and its program.

* * *

Dr. Donald Koonce made the headlines of the Chicago papers after reporters learned of the decision of our State Society to admit Negro members.

* * *

It is unfortunate that the airport in Chicago is separated from the city by a grade crossing. It is not an uncommon experience for a limousine or taxicab to be held up by a long freight train for 20 minutes or more—long enough to miss connection with the plane. It seems that a city as large as Chicago would have outgrown grade crossings.

* * *

Dr. David Allman, of Atlantic City, was chosen President-Elect without opposition. Those who met Dr. Allman and heard him speak when he was a guest of our State Society can readily understand that his selection was a popular one, and can be sure that he will maintain the high standard set by his predecessors.

President's Message

I don't think that any doctor in his right mind would oppose adequate medical care for the physically and financially handicapped. Yet, there seems to be a definite sense of unhappiness and misunderstanding in the minds of many members of the medical profession in North Carolina concerning the administration of the various government aids available in such cases. The ideology behind the numerous welfare plans and administrative groups cannot be questioned, but the practical implementation of those plans in many cases leaves a great deal to be wanted. Some welfare aids specify that the recipient shall be indigent, another only that he be a handicapped wage-earner. If the patient is a wage-earner and can adequately afford the needed medical care through voluntary means, government aid is—whether we like it or not—state or socialized medicine. If the patient is indigent, he is a ward of society and his hospital and ancillary care should be, and must be, provided through local, state and federal funds. The professional medical care of indigent medical patients, however, should be the privilege of the medical profession and not the obligation of the taxpayer. Available funds for the care of the indigent patients should be used for hospital and ancillary care entirely, and not for medical fees.

Available public funds for the adequate medical care of indigent patients should not be something sought after by members of the medical profession for their own financial gain. Not a few groups and individual members of our profession make quite a good thing out of their connections with these welfare agencies. The medical profession as a whole should exert more adequate supervision over the distribution and use of these public funds for professional medical care. There are advisory committees, of course, but, at present, they are of

little avail. There should be no favoritism in the distribution of these funds.

Special professional qualifications for participation in these programs are, of course, necessary but equally qualified men in identical situations should have an equal chance for participation. It is true, and justly so, that teaching institutions have the opportunity to participate in more cases than other groups, because many of the cases need multiple or specially trained services available only in teaching institutions. However, locally available and adequately certified services should be used to their fullest. At no time should an administrator be in a position to decide which doctor is qualified for participation and which is not. At no time should an administrative assistant be in a position to decide which qualified doctor should be used.

In the administration of broad plans such as these welfare aids, inequities and discrepancies are inevitable. They should be drastically curbed, however. How many of us have had patients under the Crippled Children Plan whose parents have demanded a private room and stated that they were able to pay for it? How many of us have had patients under Vocational Rehabilitation who have owned a good-sized farm without a mortgage on it? How many of us have had patients under the School Health Program whose parents had an adequate income to furnish the medical needs of their children? How many district offices of such bureaus are graded by the number of grants they make rather than the actual necessity of the grants?

Again, the actual medical care of the indigent sick should be the privilege of the medical profession and the adequate medical care of the financially sound the obligation of the individual.

Donald B. Koonce, M.D.

Federal appropriations for medical research are at an all-time record, explained in part by Senate approval of a 48 per cent increase over last year's funds—Washington Office of the A.M.A.

Committees and Organizations

SCHEDULE OF COMMITTEE APPOINTMENTS, 1956-57

NOTE: The Committees listed herein have been authorized by President Donald B. Koonce and/or are required under the Constitution and By-Laws.

1. **Committee to Work with the North Carolina Industrial Commission (6)**
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 Charles T. Wilkinson, M.D., 205 Waite Street, Wake Forest
 Guy L. Odum, M.D., Duke Hospital, Durham
 Thomas B. Dameron, Jr., M.D., 309 Hillsboro Street, Raleigh
 Grover C. Bolin, Jr., M.D., 423 Hancock St., Smithfield
 J. S. Mitchener, Jr., M.D., Scotland County Memorial Hospital, Laurinburg
2. **Committee Advisory to the Auxiliary (6)**
 Roscoe D. McMillan, M.D., Chairman, Box 232, Red Springs
 John P. Harloe, M.D., 508 Professional Bldg., Charlotte
 Jean C. McAlister, M.D., 104 E. Northwood St., Greensboro
 James Tidler, M.D., 306 N. 11th St., Wilmington
 Joshua F. B. Camblos, M.D., 500 New Medical Bldg., Asheville
 Rowena S. Hall, M.D., 920 S. 17th Street, Wilmington
3. **Committee on Child Health (7)**
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 Edward C. Curnen, Jr., M.D., UNC School of Medicine, Chapel Hill
 J. Buren Sidbury, Sr., M.D., 15 N. 5th Street, Wilmington
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 Clyde R. Hedrick, M.D., Box 619, Lenoir
 Richard W. Borden, M.D., Box 386, Goldsboro
 F. A. Blount, M.D., 4th Street at Spring, Winston-Salem
4. **Committee on Cancer (12) (Legal—1 ea. Congressional District)**
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 Hubert McN. Poteat, Jr., M.D., (4th) 207 S. Third Street, Smithfield
 R. Bertram Williams, M.D., (7th) 308 N. 3rd Street, Wilmington
 Mark McD. Lindsey, M.D., (8th) Hamlet Hospital, Hamlet
 Charles I. Harris, Jr., M.D., (1st) Martin General Hospital, Williamston
 H. Fleming Fuller, M.D., (2nd) Kinston Clinic, Kinston
 Corbett E. Howard, M.D., (3rd) Drawer 1141, Goldsboro
 Robert J. Reeves, M.D., (6th) Duke Hospital, Durham
 David L. Pressly, M.D., (9th) Stearns Bldg., Statesville
 John A. Brabson, M.D., (10th) 1627½ Elizabeth Ave., Charlotte
 Harry D. Riddle, M.D., (11th) 166 W. Franklin Street, Gastonia
 Joshua F. B. Camblos, M.D., (12th) 500 New Medical Bldg., Asheville
5. **Committee on Finance (3)**
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 Vonnie M. Hicks, M.D., 127 W. Hargett Street, Raleigh
 Arthur L. Daughtridge, M.D., Box 111, Rocky Mount
6. **Committee on Hospitals and Professional Relations and the Corporate Practice of Medicine (10) 1 ea. District**
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 Hubert McN. Poteat, Jr., M.D., 207 S. Third Street, Smithfield
 Harold B. Kernodle, M.D., Kernodle Clinic, Burlington
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 James S. Raper, M.D., 20 Battery Park Avenue, Asheville
 Jacob H. Shuford, M.D., 7 Main Avenue Place, S.W., Hickory
7. **Committee on Occupational Health (6)**
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 G. Norman Boyer, M.D., 26 W. Jordan Street, Brevard
 Logan T. Robertson, M.D., 17 Charlotte Street, Asheville
 Manson Meads, M.D., Bowman Gray School of Medicine, Winston-Salem
 Mac Roy Gasque, M.D., Ecusta Paper Corp., Pisgah Forest
8. **Committee on Legislation (5)**
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 Hubert McN. Poteat, Jr., M.D., 207 S. 3rd Street, Smithfield
 Donald B. Koonce, M.D., President (Ex Officio) 408 N. 11th Street, Wilmington
 Millard D. Hill, M.D., Secretary, (Ex Officio) 15 W. Hargett Street, Raleigh
9. **Advisory Committee to the North Carolina Medical Care Commission (5)**
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 Junius W. Davis, Jr., M.D., 315 Craven Street, New Bern

10. Committee on Mental Hygiene (7)

Allyn B. Choate, M.D., Chairman, 1012 Kings Drive, Charlotte
 John S. McKee, Jr., M.D., State Hospital, Morganton
 George C. Ham, M.D., UNC School of Medicine, Chapel Hill
 R. Burke Suitt, M.D., Duke University, Durham
 Lloyd J. Thompson, M.D., 715 Oaklawn Avenue, Winston-Salem
 David A. Young, M.D., 714 St. Mary's Street, Raleigh
 Wilmer C. Betts, Jr., M.D., 2109 Clark Avenue, Raleigh

11. Committee on Scientific Awards (10)

Rowland T. Bellows, M.D., Chairman, 1012 Kings Drive, Charlotte
 Charles M. Norfleet, Jr., M.D., Bowman Gray School of Medicine, Winston-Salem
 E. D. Shackelford, Jr., M.D., 2001 Liberty Road, Asheboro
 Wm. M. Long, M.D., S. Main Street, Mocksville
 George W. James, M.D., 205 S. Hawthorne Road, Winston-Salem
 Wm. O. Beavers, M.D., 1016 N. Elm Street, Greensboro
 Douglas McKay Glasgow, M.D., 1012 Kings Drive, Charlotte
 Bruce B. Blackmon, M.D., Buies Creek
 Robert N. Creadick, M.D., Box 3608 Duke Hospital, Durham
 Emory Hunt, Consultant, University of North Carolina, Chapel Hill

12. Committee on Necrology (3)

Charles H. Pugh, M.D., Chairman, Box 527, Gastonia
 Ben F. Royal, M.D., Box 628, Morehead City
 J. Buren Sidbury, Sr., M.D., 15 N. 5th Street, Wilmington

13. Committee on Postgraduate Medical Study (8)

Amos N. Johnson, M.D., Chairman, Garland
 Wm. McN. Nicholson, M.D., Duke Hospital, Durham
 Wm. P. Richardson, M.D., N. C. Memorial Hospital, Chapel Hill
 Monroe T. Gilmour, M.D., 1351 Durwood Drive, Charlotte
 Joseph B. Stevens, M.D., 1017 Professional Village, Greensboro
 Courtland H. Davis, M.D., Bowman Gray School of Medicine, Winston-Salem
 Frank R. Reynolds, M.D., 1613 Dock Street, Wilmington

14. Committee on Publications (5)

Millard D. Hill, M.D., Chairman, 15 W. Hargett Street, Raleigh
 Wingate M. Johnson, M.D., 300 S. Hawthorne Road, Winston-Salem
 Wm. McN. Nicholson, M.D., Duke Hospital, Durham
 G. Westbrook Murphy, M.D., 611 Flatiron Bldg., Asheville
 John B. Graham, M.D., Box 1020, Chapel Hill

15. Committee on Public Relations (3) (7 District Consultants)

Amos N. Johnson, M.D., Chairman, Garland
 John S. Rhodes, M.D., 700 W. Morgan Street, Raleigh
 Edgar T. Beddingfield, Jr., M.D., P.O. Box 137, Stantonsburg

John A. Payne, III, M.D., (Consultant) (1st) Sunbury
 James Graham Ramsay, M.D., (Consultant) (2nd) 120 Washington Street, Washington
 Arthur E. Morgan, M.D., (Consultant) (5th) 234 Ray Avenue, Fayetteville
 Monroe T. Gilmour, M.D., (Consultant) (7th) 1351 Durwood Drive, Charlotte
 Fred K. Garvey, M.D., (Consultant) (8th) 300 S. Hawthorne Road, Winston-Salem
 Irving E. Shafer, Sr., M.D., (Consultant) (9th) 108 W. Innes Street, Salisbury
 Wm. H. Burch, M.D., (Consultant) (10th) Bat Cave

16. Committee on Tuberculosis (5)

Joseph S. Hiatt, Jr., M.D., Chairman, 208 S. W. Broad Street, Southern Pines
 Merle D. Bonner, M.D., 1023 N. Elm St., Greensboro
 Charles D. Thomas, M.D., Black Mountain Highway, Black Mountain
 Herman F. Easom, M.D., Eastern N. C. Sanatorium, Wilson
 Wm. M. Peck, M.D., N. C. Sanatorium, McCain

17. Committee on Scientific Work (3)

Millard D. Hill, M.D., Chairman, 15 W. Hargett Street, Raleigh
 Theodore S. Raiford, M.D., 607 Flatiron Bldg., Asheville
 Lenox D. Baker, M.D., Duke Hospital, Durham

18. Committee on Professional Liability Insurance (3)

George W. Paschal, Jr., M.D., Chairman, 311 Lands Bldg., Raleigh
 Alban Papineau, M.D., Plymouth Clinic, Plymouth
 Kenneth B. Geddie, M.D., 641 N. Main St., High Point

19. Committee on Group Health and Accident Insurance (3)

Joseph W. Hooper, Jr., M.D., Chairman, 410 N. 11th Street, Wilmington
 John C. Young, M.D., 403 Flatiron Bldg., Asheville
 Henry B. Perry, Jr., M.D., 344 N. Elm Street, Greensboro

20. Committee on Coroner System (9)

John H. Hamilton, M.D., Chairman, 214 W. Jones Street, Raleigh
 John C. Young, M.D., 403 Flatiron Bldg., Asheville
 John C. Reece, M.D., Grace Hospital, Morganton
 Howard M. Starling, M.D., 505 Reynolds Bldg., Winston-Salem
 J. Grover Raby, M.D., 300 St. Patrick Street, Tarboro
 Hunter McG. Sweaney, M.D., 1200 Broad Street, Durham
 John W. Morris, M.D., 900 Shepard Street, Morehead City
 John P. U. McLeod, M.D., McLeod Clinic, Marshville
 Hershel C. Lennon, M.D., 338 N. Elm Street, Greensboro

21. Committee on Maternal Health (12)

James F. Donnelly, M.D., Chairman, State Board of Health, Raleigh (term expires 1957)
 Glenn C. Best, M.D., Main Street, Clinton (term expires 1957)
 Guy H. Branaman, Jr., M.D., 500 St. Mary's Street, Raleigh (term expires 1958)

- Avon H. Elliot, M.D., Ex-Officio, State Board of Health, Raleigh
- Wm. A. Hoggard, Jr., M.D., 1502 Caroline Avenue, Elizabeth City (term expires 1959)
- Jesse Caldwell, Jr., M.D., 114 W. Third Street, Gastonia (term expires 1958)
- Frank Ray Lock, M.D., 300 S. Hawthorne Road, Winston-Salem (term expires 1957)
- Hugh A. McAllister, M.D., Medical Arts Bldg., Lumberton (term expires 1958)
- George O. Moss, M.D., RFD, Rutherfordton (term expires 1957)
- Robert A. Ross, M.D., N. C. Memorial Hospital, Chapel Hill (term expires 1957)
- Roy T. Parker, M.D., Box 3517, Duke Hospital, Durham (term expires 1960)
- Charles T. Pace, M.D., State Bank Bldg., Greenville (term expires 1960)
- 22. Committee on Veterans Affairs (6)**
- Samuel L. Elfmon, M.D., Chairman, 225 Green Street, Fayetteville
- Everette I. Bugg, Jr., M.D., Broad and Englewood, Durham
- Vernon L. Andrews, M.D., Box 407, Mt. Gilead
- John B. Hickam, M.D., Box 3703, Duke Hospital, Durham
- John T. Sessions, Jr., M.D., UNC Dept. of Medicine, Chapel Hill
- Eben Alexander, Jr., M.D., Bowman Gray School of Medicine, Winston-Salem
- 23. Committee on Rural Health and Education (11)**
- W. Wyan Washburn, M.D., Chairman, (7th District) Boiling Springs
- Wm. A. Hoggard, Jr., M.D., (1st District) 1502 Caroline Avenue, Elizabeth City
- R. Vernon Jeter, M.D., (2nd District) Plymouth Clinic, Plymouth
- John W. Nance, M.D., (3rd District) 120½ Main Street, Clinton
- Thomas J. Taylor, M.D., (4th District) 643 Roanoke Avenue, Roanoke Rapids
- Daniel S. Currie, Jr., M.D., (5th District) 302 Old Street, Fayetteville
- James Donald Bradsher, M.D., (6th District) Box 168, Roxboro
- Henry B. Perry, Jr., M.D., (8th District) 344 N. Elm St., Greensboro
- Charles E. Cloninger, M.D., (9th District) P.O. Box 245, Conover
- Hugh A. Matthews, M.D., (10th District) 44 Academy Street, Canton
- Rachel D. Davis, M.D., Consultant, 111 E. Gordon Street, Kinston
- 24. Medical Advisory Committee on Doctors' Insurance Plan (9)**
- Howard H. Bradshaw, M.D., Chairman, 300 S. Hawthorne Road, Winston-Salem (term expires 1958)
- Robert W. King, M.D., 107 Bradford Avenue, Fayetteville (term expires 1958)
- Jacob H. Shuford, M.D., 7 Main Avenue Place, S.W., Hickory (term expires 1958)
- Willard C. Goley, M.D., 214 N. Marshall Street, Graham (term expires 1957)
- John Hoskins, M.D., 23 Flint Street, Asheville (term expires 1957)
- O. Norris Smith, M.D., 363 N. Elm Street, Greensboro (term expires 1957)
- Louis C. Roberts, M.D., 1200 Broad Street, Durham (term expires 1959)
- James P. Rousseau, M.D., 1014 West Fifth Street, Winston-Salem (term expires 1959)
- W. Z. Bradford, M.D., 1509 Elizabeth Avenue, Charlotte (term expires 1959)
- 25. Committee to Arrange Facilities for Annual Session (3)**
- Millard D. Hill, M.D., Chairman, 15 W. Hargett Street, Raleigh
- Theodore S. Raiford, M.D., 607 Flatiron Bldg., Asheville
- Joshua F. B. Camblos, M.D., 500 New Medical Bldg., Asheville
- 26. Committee on Emergency Medical Service (9)**
- Chauncey L. Royster, M.D., Chairman, 707 W. Morgan Street, Raleigh
- George A. Watson, M.D., 306 S. Gregson Street, Durham
- J. Kingsley MacDonald, M.D., 1524 Harding Place, Charlotte
- Harry D. Riddle, M.D., 166 W. Franklin Street, Gastonia
- Felda Hightower, M.D., Bowman Gray School of Medicine, Winston-Salem
- M. J. Hornowski, M.D., 394 Merrimon Avenue, Asheville
- Ben F. Royal, M.D., Box 628, Morehead City
- W. Walton Kitchin, M.D., Sampson County Hospital, Clinton
- Furman P. Covington, M.D., 2 Salem Street, Thomasville
- 27. Committee on Medical Society Headquarters Facilities (7)**
- William M. Coppridge, M.D., Chairman, 1200 Broad Street, Durham
- Malory A. Pittman, M.D., Wilson Clinic, Wilson
- Frederick C. Hubbard, M.D., Box 30, North Wilkesboro
- Harry L. Brockmann, M.D., 649 N. Main Street, High Point
- Hugh A. Thompson, M.D., 309 Hillsboro Street, Raleigh
- Elias S. Faison, M.D., 1012 Kings Drive, Charlotte
- James P. Rousseau, M.D., 1014 West Fifth Street, Winston-Salem
- 28. Committee on Military Service (6)**
- George W. Paschal, Jr., M.D., Chairman, 311 Lands Bldg., Raleigh
- Ralph J. Sykes, M.D., 205 Rawley Avenue, Mt. Airy
- John P. Bond, M.D., 155 S. York Street, Gastonia
- H. Mack Pickard, M.D., 7 N. 17th Street, Wilmington
- Thomas D. Slagle, M.D., Box 456, Sylva
- W. Walton Kitchin, M.D., Sampson County Hospital, Clinton
- 29. Committee to Revise the Constitution and By-Laws (5)**
- Roscoe D. McMillan, M.D., Chairman, Box 232, Red Springs
- Moir S. Martin, M.D., 314 Cherry Street, Mt. Airy
- J. Stuart Gaul, Sr., M.D., 315 Professional Bldg., Charlotte
- Louis DeS. Shaffner, M.D., 300 S. Hawthorne Road, Winston-Salem
- William G. Spencer, Jr., M.D., 301 West End Avenue, Wilson
- 30. Mediation Committee (5)—1st five past-presidents**
- Frederick C. Hubbard, M.D., Chairman, Box 30, North Wilkesboro

- James P. Rousseau, M.D., Secretary, 1014 West Fifth Street, Winston-Salem
 J. Street Brewer, M.D., Box 98, Roseboro
 Joseph A. Elliott, Sr., M.D., 1012 Kings Drive, Charlotte
 Zack D. Owens, M.D., Medical Bldg., Elizabeth City
31. **Committee on Eye Care (To work with the North Carolina State Board of Health, N. C. Commission for the Blind and the School Health Program) (6)**
 Alan Davidson, M.D., Chairman, Box 1313, New Bern
 Horace M. Dalton, M.D., 400 Glenwood Avenue, Kinston
 R. Winston Roberts, M.D., 300 S. Hawthorne Road, Winston-Salem
 Walter C. Humbert, M.D., Box 726, Greenville
 John D. Wilsey, III, M.D., 310 W. 4th Street, Winston-Salem
 Elbert C. Anderson, M.D., 806 Murchison Bldg., Wilmington
32. **Committee of Physicians on Nursing (7)**
 Harry L. Brockmann, M.D., Chairman, 649 N. Main Street, High Point
 David T. Smith, M.D., Duke Hospital, Durham
 Moir S. Martin, M.D., 314 Cherry Street, Mt. Airy
 Vernon H. Youngblood, M.D., Rt. 8, Kannapolis-Concord Highway, Concord
 Wm. G. Spencer, Jr., M.D., 301 W. End Avenue, Wilson
 W. Reece Berryhill, M.D., UNC School of Medicine, Chapel Hill
 W. D. James, Jr., M.D., Hamlet Hospital, Hamlet
33. **Committee to Study Care and Control of Chronic Illness (8)**
 James P. Rousseau, M.D., Chairman, 1014 West Fifth Street, Winston-Salem
 Wm. M. Coppridge, M.D., 1200 Broad Street, Durham
 J. Street Brewer, M.D., Box 98, Roseboro
 John R. Kernodle, M.D., Kernodle Clinic, Burlington
 Merle D. Bonner, M.D., 1023 N. Elm Street, Greensboro
 John L. Winstead, M.D., 1001 E. Fourth Street, Greenville
 Lenox D. Baker, M.D., Duke Hospital, Durham
 Melvin W. Webb, M.D., Webb Clinic, Burnsville
34. **Committee on Archives of Medical Society History (4 Members) (3 Consultants)**
 James P. Rousseau, M.D., Chairman, 1014 West Fifth Street, Winston-Salem
 Wingate M. Johnson, M.D., 300 S. Hawthorne Road, Winston-Salem
 G. Westbrook Murphy, M.D., 611 Flatiron Bldg., Asheville
 Paul F. Whitaker, M.D., 1205 N. Queen Street, Kinston
 Wilburt C. Davison, M.D., Consultant, Duke Hospital, Durham
 Coy C. Carpenter, M.D., Consultant, Bowman Gray School of Medicine, Winston-Salem
 James B. Bullitt, M.D., Consultant, Medical Bldg., Chapel Hill
35. **Reference Committee on Credentials of Delegates to House of Delegates (4)**
 Milton S. Clark, M.D., Chairman, 139 W. Walnut Street, Goldsboro
- Edward S. Bivens, M.D., Stanly County Hospital, Albemarle
 T. Tilghman Herring, M.D., Wilson Clinic, Wilson
36. **Committee on General Practitioner Award (5)**
 Ben H. Kendall, M.D., Chairman, Shelby Medical Center, Shelby
 Wm. A. Sams, M.D., Box BB, Marshall
 Wayne J. Benton, M.D., 514½ S. Elm Street, Greensboro
 J. Grover Raby, M.D., 300 St. Patrick Street, Tarboro
 Alban Papineau, M.D., Plymouth Clinic, Plymouth
37. **Nominating Committee (10)**
 John A. Payne, III, M.D., First Medical District, Sunbury
 Ben F. Royal, M.D., Second Medical District, Box 628, Morehead City
 Graham B. Barefoot, M.D., Third Medical District, 10th & Rankin Streets, Wilmington
 Bennett Edward Stephenson, M.D., Fourth Medical District, Box 206, Rich Square
 R. D. Croom, Jr., M.D., Fifth Medical District, Carpenter Bldg., Maxton
 J. Leonard Goldner, M.D., Sixth Medical District, Duke Hospital, Durham
 Claude B. Squires, M.D., Chairman, Seventh Medical District, 403 N. Tryon Street, Charlotte
 Walter T. Tice, M.D., Eighth Medical District, 649 N. Main Street, High Point
 William M. Long, M.D., Ninth Medical District, S. Main Street, Mocksville
 John B. Anderson, M.D., Tenth Medical District, 201 Haywood Bldg., Asheville
38. **Committee on Heart Disease Control (7)**
 Monroe T. Gilmour, M.D., Chairman, 1351 Durwood Drive, Charlotte
 Elias S. Faison, M.D., 1012 Kings Drive, Charlotte
 Robert L. McMillan, M.D., Bowman Gray School of Medicine, Winston-Salem
 Ernest Craigie, M.D., N. C. Memorial Hospital, Chapel Hill
 James P. Hendrix, M.D., Box 3408, Duke Hospital, Durham
 Robert T. Pigford, M.D., 1015 Murchison Bldg., Wilmington
 James C. Bruce, M.D., 1029 Madison Avenue, Greensboro
39. **Committee on Vocational Rehabilitation (6)**
 George W. Holmes, M.D., Chairman, 620 Nissen Bldg., Winston-Salem
 Roy B. McKnight, M.D., Hawthorne Medical Center, Charlotte
 Harry D. Riddle, M.D., 166 W. Franklin Street, Gastonia
 J. Leonard Goldner, M.D., Duke Hospital, Durham
 Charles H. Ashford, M.D., 603 Pollock Street, New Bern
 Edwin J. Wells, M.D., 504 Murchison Bldg., Wilmington

40. Advisory Committee to the North Carolina State Board of Public Welfare (5)

Logan T. Robertson, M.D., Chairman, 17 Charlotte Street, Asheville
 Wm. W. Noel, M.D., 309 Wyche Street, Henderson
 Avon H. Elliot, M.D., State Board of Health, Raleigh
 Frank P. Ward, M.D., 501 W. 27th Street, Lumberton
 Paul F. Whitaker, M.D., 1205 N. Queen Street, Kinston

41. Committee Advisory on School Health and State Coordinating Service (6)

William T. Rainey, Sr., M.D., Chairman, 107 Bradford Avenue, Fayetteville
 Charles H. Gay, M.D., 1012 Kings Drive, Charlotte
 Wm. G. Spencer, Jr., M.D., 301 West End Avenue, Wilson
 H. G. Moore, Jr., M.D., 1010 Grace Street, Wilmington
 Charles W. Wharton, M.D., 7-A Thornton Bldg., Smithfield
 Harry W. Winkler, M.D., 1500 Elizabeth Avenue, Charlotte

42. Committee on Eye Bank (6)

Wm. Banks Anderson, M.D., Chairman, Box 3802, Duke Hospital, Durham
 Raymond F. Grove, M.D., 905 Murchison Bldg., Wilmington
 Edwin Hale Thornhill, M.D., 720 W. Jones Street, Raleigh
 J. David Stratton, M.D., 1012 Kings Drive, Charlotte
 Edward E. Moore, M.D., 706 Flatiron Bldg., Asheville
 John D. Wilsey, III, M.D., 310 W. 4th Street, Winston-Salem

43. Committee on Blood Program (7)

Kenneth M. Brinkhous, M.D., Chairman, UNC School of Medicine, Box 1020, Chapel Hill
 H. Lee Large, Jr., M.D., Presbyterian Hospital, Charlotte
 James T. Littlejohn, M.D., 310 New Medical Bldg., Asheville
 Thomas N. Lide, M.D., City Memorial Hospital, Winston-Salem
 Thomas B. Wilson, M.D., Rex Hospital, Raleigh
 Ivan W. Brown, Jr., M.D., Duke Hospital, Durham
 Robert E. Klein, M.D., Bowman Gray School of Medicine, Winston-Salem

44. Anesthesia Study Commission (9)

David A. Davis, M.D., Chairman, N. C. Memorial Hospital, Chapel Hill
 Charles R. Stephen, M.D., Box 3535, Duke Hospital, Durham
 Roscoe L. Wall, Sr., M.D., Bowman Gray School of Medicine, Winston-Salem
 Horace M. Baker, Jr., M.D., Medical Arts Bldg., Lumberton
 Duncan G. Calder, Jr., M.D., Ardsley Road, Concord
 Frank S. Parrott, M.D., 126 W. Innes Street, Salisbury
 Joseph S. Hiatt, Jr., M.D., 208 S.W. Broad Street, Southern Pines
 Williamson Z. Bradford, M.D., 1509 Elizabeth Avenue, Charlotte
 Will Camp Sealy, M.D., Duke Hospital, Durham

45. Committee on Scientific Audio-Visual Post-graduate Instruction (7)

J. Leonard Goldner, M.D., Chairman, Duke Hospital, Durham
 Lenox D. Baker, M.D., Duke Hospital, Durham
 J. O. Williams, M.D., Cabarrus County Hospital, Concord
 Ernest H. Wood, M.D., N. C. Memorial Hospital, Chapel Hill
 W. Walton Kitchin, M.D., Sampson County Hospital, Clinton
 Charles H. Mauzy, Jr., M.D., Bowman Gray School of Medicine, Winston-Salem
 Robert W. Williams, M.D., 1007 Murchison Bldg., Wilmington

46. Committee Advisory to Student AMA Chapters in North Carolina (3)

Charles E. Flowers, M.D., Chairman, N. C. Memorial Hospital, Chapel Hill
 Richard T. Myers, M.D., 300 S. Hawthorne Road, Winston-Salem
 James P. Hendrix, M.D., Box 3408, Duke Hospital, Durham

47. Committee on Medical Golf Tournament (4)

Joseph W. Hooper, M.D., Chairman, 410 N. 11th Street, Wilmington
 W. Boyd Owens, M.D., 1426 N. Main Street, Waynesville
 Seba L. Whitehead, M.D., 508 Public Service Bldg., Asheville
 Wm. A. Brewton, M.D., 5 Lake Drive, Enka

48. Committee Liaison to Study Integration of Negro Physicians into Medical Society of the State of North Carolina (3)

J. Street Brewer, M.D., Chairman, Box 98, Roseboro
 Paul F. Whitaker, M.D., 1205 N. Queen Street, Kinston
 Ben F. Royal, M.D., Box 628, Morehead City

49. Committee to Study Medical Education and Medical Care at the House Officer Level (12)

Wayne J. Benton, M.D., Chairman, 514½ S. Elm Street, Greensboro
 Wilbert C. Davidson, M.D., 3701 Duke Hospital, Durham
 Coy C. Carpenter, M.D., Bowman Gray School of Medicine, Winston-Salem
 W. Reece Berryhill, M.D., UNC School of Medicine, Chapel Hill
 Graham B. Barefoot, M.D., 10th & Rankin Streets, Wilmington
 Thomas L. Umphlet, M.D., 119 N. Boylan Avenue, Raleigh
 Thomas T. Jones, M.D., 604 W. Chapel Hill Street, Durham
 Joe Milton Van Hoy, M.D., 1012 Kings Drive, Charlotte
 John B. Anderson, M.D., 201 Haywood Bldg., Asheville
 Duncan Roland McEachern, M.D., 203 Murchison Bldg., Wilmington
 Howard M. Starling, M.D., 505 Reynolds Bldg., Winston-Salem
 David M. Cogdell, M.D., 911 Hay Street, Fayetteville

50. Committee to Study Medical Credit Bureaus (5)

W. Howard Wilson, M.D., Chairman, 403 Professional Bldg., Raleigh
 Fred K. Garvey, M.D., Co-Chairman, Bowman Gray School of Medicine, Winston-Salem
 Moir S. Martin, M.D., 314 Cherry Street, Mt. Airy

- Roy B. McKnight, M.D., Hawthorne Medical Center, Charlotte
 Ralph J. Sykes, M.D., 205 Rawley Avenue, Mt. Airy
51. **Legal Liaison Committee to Work with the North Carolina Bar Association (6)**
 Theodore S. Raiford, M.D., Chairman, 20 Battery Park Avenue, Asheville
 John F. Owen, M.D., 510 Professional Bldg., Raleigh
 Thomas W. Baker, M.D., 1012 Kings Drive, Charlotte
 Bennette B. Pool, M.D., 414 Nissen Bldg., Winston-Salem
 Charles P. Graham, M.D., 304 N. 11th Street, Wilmington
 Daniel S. Currie, Jr., M.D., 302 Old Street, Fayetteville
52. **Liaison Committee to the North Carolina Pharmaceutical Association (5)**
 Ralph B. Garrison, M.D., Chairman, 222 W. Main Street, Hamlet
 Joseph B. Warren, M.D., Oriental
 Charles R. Welfare, M.D., 417 Nissen Bldg., Winston-Salem
 Wm. A. Greene, M.D., 104 E. Commerce Street, Whiteville
 James Allan Whitaker, M.D., 144 Coast Line Street, Rocky Mount
53. **Committee on Medical Care Armed Forces Dependents (5)**
 David M. Cogdell, M.D., Chairman, 911 Hay Street, Fayetteville
 Daniel S. Currie, Jr., M.D., 302 Old Street, Fayetteville
 James DeCamp Piver, M.D., 209 Bayshore, Jacksonville
 Joseph F. Patterson, M.D., 1402 Rhem Avenue, New Bern
 Everett I. Bugg, Jr., M.D., Broad & Inglewood Streets, Durham
54. **Committee on Crippled Children (6)**
 Alexander Webb, Jr., M.D., Chairman, 221 Bryan Bldg., Raleigh
 L. B. Mason, M.D., 1006 Murchison Bldg., Wilmington
 C. F. Siewers, M.D., 1004 Hay Street, Fayetteville
 Isaac E. Harris, Jr., M.D., 1200 Broad Street, Durham
 George W. Holmes, M.D., 620 Nissen Bldg., Winston-Salem
 J. Stuart Gaul, Jr., M.D., Hawthorne Bldg., Charlotte
55. **Committee to Survey Committee Structure (4)**
 Edward W. Schoenheit, M.D., Chairman, 46 Haywood Street, Asheville
 O. Norris Smith, M.D., 363 N. Elm Street, Greensboro
 John S. Rhodes, M.D., 700 W. Morgan Street, Raleigh
 John C. Reece, M.D., Grace Hospital, Morgan-ton
56. **Committee on Scientific Exhibits (3)**
 Everett I. Bugg, Jr., M.D., Chairman, Broad & Englewood, Durham
 R. B. Raney, M.D., N. C. Memorial Hospital, Chapel Hill
 Manson Meads, M.D., Bowman Gray School of Medicine, Winston-Salem
57. **Committee on Uniform Medical Insurance Report Forms (4)**
 George W. Paschal, Jr., M.D., Chairman, 311 Lands Bldg., Raleigh
 Frank W. Jones, M.D., Catawba Hospital, Newton
 Walter S. Hunt, Jr., M.D., 309 Hillsboro Street, Raleigh
 Julian Jacobs, M.D., 121 W. 7th Street, Charlotte

BULLETIN BOARD

COMING MEETINGS

New Hanover County Medical Symposium—Lumina ballroom, Wrightsville, Friday, August 3.

North Carolina Heart Association, Annual Meeting—Battery Park Hotel, Asheville, September 15, 16.

Mississippi Valley Medical Society, Twenty-First Annual Meeting—Hotel Morrison, Chicago, September 26-28.

American Medical Writers' Association, Thirtieth Annual Meeting—Hotel Morrison, Chicago, September 28-29.

American Congress of Physical Medicine and Rehabilitation, Thirty-Fourth Annual Scientific and Clinical Sessions—The Ambassador, Atlantic City, New Jersey.

Tennessee Valley Medical Assembly—Read House, Chattanooga, October 1-2.

Postgraduate Medical School of New York University — Bellevue Medical Center, Eight-Week Course in Occupational Medicine—New York City, September 10-November 2.

American Rhinologic Society—Annual Meeting—Chicago, October 9-13.

American College of Gastroenterology, Annual Postgraduate Course in Gastroenterology—Hotel Roosevelt, New York, October 18-20.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

The psychiatry department of Duke University Medical School has been awarded a \$211,000 research grant by the National Institute of Mental Health, it was announced recently.

The grant will provide for a five-year continuation of research on the effect of aging upon the physiologic and psychologic functioning of elderly people.

Dr. Ewald W. Busse, chairman of the Duke psychiatry department, is chief investigator for the project. Working with him will be a research team composed of some 16 faculty members, research workers, and graduate students.

The research here is a continuation of work initiated in 1950 by Dr. Busse and his associates, then at the University of Colorado. Its primary goal is to provide a better understanding of the changes which take place in normal people as they become older.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

Contributions have been made recently to the Memorial Fund of the Medical Foundation of North Carolina, Inc. in memory of the late Robert E. Little of Wadesboro, it has been announced by Dr. Paul F. Whitaker, president of the Medical Foundation. The contributions honoring Little were given by Collier Cobb, Jr. of Chapel Hill and Major L. P. McLendon of Greensboro.

The Memorial Fund of the Medical Foundation was established last year by Mrs. Robert M. Hanes of Winston-Salem with a contribution in memory of the late Dr. Donnell Borden Bobb of Goldsboro.

"Monies contributed to the Memorial Fund of the Medical Foundation will be used in medical education and research conducted under the auspices of the University of North Carolina Medical School," Dr. Whitaker said.

The purpose of the Memorial Fund is to provide a fund to which anyone might contribute in memory of a loved one.

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Dr. Carl W. Gottschalk, assistant professor of medicine at the University of North Carolina, has been named winner of the John Horsley Memorial Prize of the University of Virginia.

The award is made every two years. Dr. Gottschalk, a native of Salem, Virginia, is a 1945 graduate of the University of Virginia Medical School.

The prize was awarded to Dr. Gottschalk at the annual Scientific Dinner of the medical alumni of Virginia. Income for the prize comes from the interest of an endowment set up by Dr. J. Shelton Horsley in memory of his father.

Dr. Gottschalk joined the U.N.C. Medical School staff in 1952.

* * *

Planning sessions for postgraduate medical courses were held recently in Asheville and Morganton for postgraduate courses to be offered during the fall, it was announced by Dr. W. P. Richardson, assistant dean for Continuation Education. The Morganton Postgraduate Medical Course will be held on Wednesday afternoons and evenings for six weeks beginning September 19, and the Asheville Postgraduate Medical Course will be offered Thursday afternoons and evenings for six weeks beginning September 20 (excluding the week of the Tenth District Medical Society Fall Symposium). Dr. William H. Kibler is the chairman for the planning committee for the Morganton Course, and Dr. Leon H. Feldman is chairman of the planning committee for the Asheville Course.

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Dr. Sydenham B. Alexander recently was named assistant administrator of the Division of Health Affairs of the University of North Carolina, it was announced by Chancellor Robert B. House and Dr. Henry T. Clark, Jr., administrator of the Division.

A clinical assistant professor of medicine in the

School of Medicine since 1953, Dr. Alexander has been associate physician in the University infirmary the past seven years.

A native of Charlotte, Dr. Alexander is a graduate of the University in the class of 1941, attended the School of Medicine here, and received his M.D. degree at the Medical College of Virginia in Richmond in 1944. During World War II he was on destroyer duty in the Pacific and during the Korean emergency served as chief of Diagnostic Services and chief of Cardio-Vascular Service of the U. S. Naval Hospital in Portsmouth, Virginia.

* * *

The 59 graduates of the 1956 class of the U.N.C. School of Medicine have pledged themselves to contribute \$100 each during the next five years to the Medical Foundation of North Carolina, Inc.

Lee Andrew Clark, Jr. of Everetts, president of the graduating class, said that these funds will be used by the Medical Foundation to provide for various needs of the medical school in areas of aid to students, scholarships, and research.

Dr. Clark said his class was genuinely interested in providing the Medical School with a few of those needs for which support is not available in state appropriations or from other sources, and which mean "the difference between just an ordinary medical school and a truly excellent one."

* * *

Dr. Robert A. Ross, professor and chairman of the Department of Obstetrics and Gynecology, is guest editor of the current issue of the **Bulletin of Maternal Welfare**.

The journal is published every other month in Chicago by the American Committee on Maternal Welfare.

Other members of the U.N.C. medical faculty whose articles appear in the current journal are Drs. James F. Donnelly, Deborah C. Leary, Hugh A. McAllister, and Charles E. Flowers, Jr.

* * *

Dr. George D. Penick, assistant professor, Department of Pathology, U.N.C. School of Medicine, has been given a travel award of \$500 to attend the Twentieth International Physiological Congress in Brussels, Belgium, meeting from July 30 through August 4.

The Federation of American Societies for Experimental Biology made the award on the basis of Dr. Penick's paper entitled "Studies on Inactivation of Antihemophilic Factor in Clotting Plasma Systems," which he will present at the Congress.

Dr. Penick's work helps explain deficiencies of this anti-hemophilic factor in some disease states of non-hemophiliacs that are associated with bleeding tendencies.

A native of Raleigh, he is the son of the Rt. Rev. Edwin A. Penick, Bishop of the Episcopal Diocese of North Carolina, and Mrs. Penick. Dr. Penick received the B.S. degree from U.N.C. in 1944 and the M.D. degree from Harvard University in 1946.

Rheumatic heart disease was the cause of more deaths during the past year than was tuberculosis, Dr. James Watt, director of the National Heart Institute of the U. S. Public Health Service, told a Chapel Hill medical audience recently.

Speaking at the Symposium on Rheumatic Fever Control for County Health Officers at the University of North Carolina Medical School, Dr. Watt went on to say that the need for multiple sources of support is great in fighting this disease.

Other speakers in the two-day symposium were: Dr. J. W. R. Norton of Raleigh, State Health Officer; three directors of hospital rheumatic fever clinics: Dr. Robert L. Vann, N. C. Baptist Hospital, Winston-Salem; Dr. Jerome S. Harris, Duke Hospital; and Dr. Edward C. Curnen, N. C. Memorial Hospital; Dr. John C. Cassel, U.N.C. Public Health School epidemiologist; Dr. Robert L. McMillan, cardiologist from Bowman Gray School of Medicine in Winston-Salem; Dr. Roger Howell, U.N.C. professor of mental health; Dr. James F. Donnelly, State Board of Health obstetric consultant; Dr. Samuel F. Ravenel, Greensboro pediatrician; Dr. Charles E. Flowers, Jr., U.N.C. obstetrician; Dr. Charles B. Kendall; Dr. Walter C. Humbert, Pitt County Health Officer; Miss Ruth Council of the Crippled Children's Section, State Board of Health; and Miss Julia Fisher, supervising nurse, Pitt County Health Department.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Dr. Martin G. Netsky, professor of neuropathology and associate professor of neurology, attended the meeting of the American Association of Neuropathologists in Atlantic City on June 16-17, at which time he gave a paper "The effect of single doses of x-radiation on experimentally induced gliomas." He also attended the sessions of the American Neurological Association on June 18-20.

A Seminar on Gastroenterology, sponsored by the division of postgraduate education of the College of Medicine of the University of Florida, was held in Jacksonville on June 21-23. Dr. David Cayer, professor of gastroenterology at the Bowman Gray School of Medicine, together with Dr. E. Clinton Texter, Jr., associate professor of medicine and director of the gastroenterology laboratory at Northwestern University Medical School, presented a series of lectures. Among the topics discussed by Dr. Cayer were: "Needle aspiration liver biopsy, diagnostic and therapeutic aspects," "Differential diagnosis of jaundice," "Cancer of the pancreas," "Acute pancreatitis," and "Hepatic insufficiency."

Twenty-five physicians registered for a two-day postgraduate course in cardiovascular diseases

here on June 27-28. The faculty included Dr. Robert L. McMillan, professor of clinical medicine who also served as co-ordinator of the course; Dr. Emery C. Miller, instructor in internal medicine; Dr. C. Glenn Sawyer, assistant professor of internal medicine; Dr. Richard K. Young, director of the Department of Pastoral Care of the North Carolina Baptist Hospital; Dr. Merrill Spencer, assistant professor of physiology and pharmacology; Dr. Frank R. Johnston, assistant professor of surgery.

NORTH CAROLINA ACADEMY OF GENERAL PRACTICE

Mecklenburg County Chapter

On Thursday, November 8, at the Hotel Charlotte, the Mecklenburg County Chapter of the North Carolina Academy of General Practice is sponsoring a Symposium on Abdominal Conditions. There will be six speakers, all of national prominence. The moderators for the sessions will be Dr. C. C. Carpenter, dean of Bowman Gray Medical School, Winston-Salem; and Dr. W. R. Berryhill, dean of the University of North Carolina Medical School, Chapel Hill. The speakers and their subjects are listed below:

"Technique and Value of Sigmoidoscopy"—Dr. J. P. Nesselrod, assistant professor of surgery, Northwestern Medical School, Chicago, "Detection of Ectopic Pregnancy"—Dr. Lewis I. Post, instructor in obstetrics, Tulane Medical School, New Orleans, "Unexpected Abdominal Conditions in Infancy and Childhood"—Dr. Orvar Swenson, professor of pediatric surgery, Tufts School of Medicine, Boston, "Non-penetrating Abdominal Injuries"—Dr. N. Frederick Hicken, professor of clinical surgery, University of Utah Medical School, Salt Lake City, "Management of the Jaundiced Patient"—Dr. Paul S. Rhoads, professor of medicine, Northwestern Medical School, Chicago.

POSTGRADUATE SEMINAR CRUISE

Governor Luther H. Hodges, who, when the history of this period is written, will go down as a leader of "North Carolinians in action," has expressed keen appreciation of the fact that the University of Pennsylvania Medical School has chosen Wilmington as its port of embarkation for its postgraduate seminar cruise, which will begin November 17, aboard the Swedish luxury liner M.S. Stockholm. "Now that we have developed our port facilities," he said, "we should all join in putting them to use, for both pleasure and profit."

The chief executive also said he was going to write Dr. John McK. Mitchell, dean of the Pennsylvania Medical School and, as Governor of North Carolina, extend to him and his medical colleagues an advance welcome to this state. He expressed the hope that, taking advantage of this oppor-

tunity, many North Carolinians will join those from other states for the Caribbean Cruise.

The Allen Travel Service, Incorporated, 550 Fifth Avenue, New York 36, is handling the transportation arrangements and reservations.

The medical program will constitute twenty-five hours of acceptable Category I postgraduate requirements of the American Academy of General Practice. Medical details may be secured by addressing Dr. Mayock, assistant professor of clinical medicine, University of Pennsylvania, Philadelphia.

NORTH CAROLINA CONFERENCE OF TUBERCULOSIS WORKERS

At the conclusion of the fiftieth annual meeting of the North Carolina Tuberculosis Association, the ninth annual meeting of the North Carolina Trudeau Society, and the tenth annual meeting of the North Carolina Conference of Tuberculosis Workers, new leaders emerged to guide the activities of the three organizations for the 1956-1957 fiscal year in their mutual efforts to eliminate tuberculosis from the state.

E. N. Pope of Raleigh is the new president of the North Carolina Tuberculosis Association. The other officers are Dr. C. D. Eatman, Rocky Mount, president-elect; A. L. Bechtold, Charlotte, vice-president; Mrs. Roy Parker, Ahoskie, secretary; and T. W. Steed, Raleigh, treasurer.

The 1956-1957 officers of the North Carolina Trudeau Society, medical section of the NCTA, are Dr. C. Hege Kapp, Winston-Salem, president; Dr. B. E. Morgan, Wilson, vice president; and Dr. Robert F. Young, Halifax, secretary-treasurer.

Officers of the NCCTW who will serve for two years are Mrs. Baxter Durham, Raleigh, president; Mrs. Josie Haynes, Albemarle, vice president; and Edwin Moline, Charlotte, secretary-treasurer. Member-at-large on the executive committee is Addie M. Darden, Raleigh.

NORTH CAROLINA HEART ASSOCIATION

The annual meeting of the North Carolina Heart Association will be held at the Battery Park Hotel in Asheville on September 15 and 16. For the first time the Association will hold an independent scientific session. It will take place on the afternoon of September 15 under the chairmanship of Dr. James V. Warren of Duke. Featured speakers will be Dr. Robert W. Wilkins, president of the Massachusetts Heart Association and vice president of the American Heart Association. Theme of the session will be "Prevention of Coronary Heart Disease," and a number of papers will be given by physicians and heart research workers throughout the state. All physicians are invited to attend this and other sessions of the Association.

Other features of the two-day meeting will include a program on health education under the chairmanship of Dr. William Fleming of the University of North Carolina, scheduled for Saturday

morning, September 15; a banquet Saturday night, at which Dr. Wilkins will give another address; and a session on fund-raising Sunday morning, September 16, followed by a luncheon and the annual business meeting, which will feature another prominent guest speaker.

During the scientific session, films will be shown for lay guests. The Board of Directors of the Association will meet at dinner the evening of September 14.

DURHAM-ORANGE COUNTY MEDICAL SOCIETY

The Durham-Orange County Medical Society held its bi-monthly dinner meeting June 13 at the Hope Valley Country Club in Durham at 7 p.m. The president, Dr. Kenneth Brinkhous of the University of North Carolina, Chapel Hill, presided. The evening's speaker was Dr. Weston LaBarre, associate professor of sociology and anthropology at Duke University. His subject was "An Anthropologist Looks at Race." Among his statements were that all races have a mixed endowment of advanced and primitive traits. No race is inferior or superior. There is no such thing as a pure race. There is really only one race biologically speaking: the human race. A mixtures of cultures produces the most advanced cultures. Man should be judged as an individual, not on his heredity. Racial "snobbery" is not justified.

Louis Foote Stanford, M.D., Chairman
Public Relations Committee

EDGECOMBE-NASH MEDICAL SOCIETY

Dr. Tom Suiter had charge of the program at the regular meeting of the Edgcombe-Nash Medical Society held in Rocky Mount on June 6. Drs. J. L. Lane and M. J. Fleming were awarded 50-year service pins.

NEWS NOTES

Dr. Ira Gordon Early has announced the opening of his office for the practice of internal medicine at 1415 West First Street, Winston-Salem.

* * *

Dr. Marcus M. Gulley has opened his office for the practice of psychiatry at 1417 West First Street in Winston-Salem.

* * *

Dr. Harold R. Hoke has announced the opening of his office at 614 North Hamilton Street, High Point, for the practice of obstetrics and gynecology.

* * *

Dr. Lonnie Waggoner, Jr., with offices at 212 West Second Street in Gastonia, has announced that Dr. John D. Wallace, Jr., will hereafter be associated with him in the practice of internal medicine.

AMERICAN COLLEGE OF GASTROENTEROLOGY

The American College of Gastroenterology announces that its annual course in postgraduate gastroenterology will be given at The Roosevelt in New York City, on October 18, 19, and 20.

The course will again be under the direction and co-chairmanship of Dr. Owen H. Wagensteen, professor of surgery of the University of Minnesota Medical School, who will serve as surgical co-ordinator and Dr. I. Snapper, director of medical education, Beth-El Hospital, Brooklyn, New York, who will serve as medical co-ordinator. Drs. Wagensteen and Snapper will be assisted by a distinguished faculty selected from the medical schools.

The subject matter to be covered, from a medical as well as surgical viewpoint, will cover, essentially, the advances in diagnosis and treatment of gastrointestinal diseases and a comprehensive discussion of diseases of the mouth, esophagus, stomach, pancreas, spleen, liver and gallbladder, colon, and rectum, with special studies of radiology and gastroscopy.

For further information and enrollment write to the American College of Gastroenterology, Department P.G., 33 West 60th Street, New York 23, New York.

AMERICAN COLLEGE OF PHYSICIANS

Mr. Edward R. Loveland, Philadelphia, for more than 30 years executive secretary of the American College of Physicians, has been made an Honorary Fellow of the College. He is the only layman ever so honored.

AMERICAN HEARING SOCIETY

Herschel W. Nisonger, director of Special and Adult Education, Ohio State University, was re-elected president of the American Hearing Society at the agency's thirty-seventh annual meeting at the Willard Hotel, Washington, June 7-9.

Also re-elected to national offices were Mrs. Harry W. Rubel, Los Angeles, first vice president; Walter C. Laidlaw, executive vice president, United Foundation of Metropolitan Detroit, second vice president; Harley Z. Wooden, executive secretary, International Council for Exceptional Children, Washington, treasurer. E. B. Whitten, executive director National Rehabilitation Association, Washington, was elected assistant treasurer, and Mrs. Fred C. Nelson, St. Paul, Minnesota, secretary.

Among 130 persons attending the Society's three-day meeting were national directors, members, and executives of chapters from 28 states. Officers elected by the National Association of Executives (of chapters) were as follows: Cletus G. Fisher, Dayton Hearing and Speech Center, chairman; Mrs. Helen S. Lowry, Hartford Hearing League, vice chairman; Harold N. Williams, Nashville Lea-

gue for the Hard of Hearing, secretary, and Frederick J. Artz, Seattle Hearing and Speech Center, treasurer.

AMERICAN COLLEGE OF SURGEONS

Organization of the Commission on Professional and Hospital Activities, Inc., was announced here today by the American College of Surgeons, American Hospital Association, American College of Physicians, and the Southwestern Michigan Hospital Council.

The organizations established the Commission to conduct medical statistical service that will help hospitals simplify medical records and analyze records more effectively for improvement of medical and administrative practices, it was explained.

The Commission has received a grant of \$260,000 from the W. K. Kellogg Foundation, Battle Creek, Michigan, to support the program for three years, after which it is expected the service may be continued on a self-sustaining basis.

Representatives at large on the Commission are: Rt. Rev. Msgr. Donald A. McGowan, Director of the National Catholic Welfare Conference, Washington, D. C., and Dr. Luther C. Carpenter, a Grand Rapids, Michigan, surgeon.

Officers elected were Dr. Paul R. Hawley, president, Dr. Edwin L. Crosby, treasurer, and Dr. Vergil N. Slee, secretary and director. The Commission will establish its headquarters and conduct its services at Ann Arbor, Michigan.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The twenty-second annual meeting of the American College of Chest Physicians was held at the Hotel Sherman, Chicago, Illinois, June 6-10. More than 1,400 physicians and guests attended the meeting. Fellowship certificates were presented to 250 physicians at the Convocation held on Saturday, June 9.

Dr. Henry C. Sweany, director of research, pathology and allied sciences, Missouri State Sanatorium, Mt. Vernon, was awarded the College Medal for his outstanding contributions in the field of chest pathology.

The following officers were elected for the year 1956-1957: President, Herman J. Moersch, Rochester, Minnesota; president-elect, Burgess L. Gordon, Philadelphia; first vice president, Donald R. McKay, Buffalo, New York; second vice president, Seymour M. Farber, San Francisco; treasurer, Charles K. Petter, Waukegan, Illinois; assistant treasurer, Albert H. Andrews, Chicago; chairman, Board of Regents, John F. Briggs, St. Paul, Minnesota; historian, Carl C. Aven, Atlanta.

Dr. Ralph E. Moyer, Oteen, was elected Governor of the College for North Carolina. Drs. Frederick R. Klenner, Reidsville, and John E. Rayl, Oteen, received their Certificates of Fellowship in the College at the Convocation on June 9.

PAN-AMERICAN SURGICAL ASSOCIATION

The seventh Congress of the Pan-Pacific Surgical Association will be held in Honolulu, Hawaii, November 14-22, 1957. All members of the profession are cordially invited to attend and are urged to make arrangements as soon as possible if they wish to be assured of adequate facilities.

An outstanding scientific program by leading surgeons with sessions in all divisions of surgery and related fields promises to be of interest to all doctors.

Further information and brochures may be obtained by writing to Dr. F. J. Pinkerton, director general of the Pan-Pacific Surgical Association, Room 230, Young Building, Honolulu, Hawaii.

THE FORD FOUNDATION

Appointment of a special committee to recommend a plan for distribution of a previously announced appropriation of \$90,000,000 to the nation's privately supported medical schools was announced today by H. Rowan Gaither, Jr., chairman of the board and president of The Ford Foundation.

Lee Dubridge, president of the California Institute of Technology, will serve as chairman of the medical school grants advisory committee. Executive vice chairman will be Carlyle Jacobsen, executive dean for medical education, State University of New York. Among the members of the advisory committee is Robert M. Hanes, president of the Wachovia Bank and Trust Company, Winston-Salem.

The \$90,000,000 appropriation has been designated by The Ford Foundation's Board of Trustees to be used as endowment by the privately supported medical schools in the strengthening of their instruction. Allocations to individual institutions will be determined by the trustees after the advisory committee has completed its report.

The appropriation is part of the \$500,000,000 announced in December, 1955, for college faculty salaries, private hospitals and medical schools, and is entirely apart from the \$10,000,000 appropriated on April 15 to the National Fund for Medical Education.

THE WORLD MEDICAL ASSOCIATION

The twenty-sixth Council Session of The World Medical Association convened in Cologne, Germany, April 29—May 5, named the following persons to fill existing vacancies: president-elect, Dr. José A. Bustamante (Cuba), chairman of the Council of the Pan American Medical Confederation; and council member, Dr. Hector Rodriguez (Chile), secretary of the Colegio Medico de Chile (Chile Medical Association) and currently regional secretary for Latin America for The World Medical Association.

The Council appointed Dr. J. A. L. Vaughan-Jones (U.K.) chairman of The World Medical

Association Committee on International Occupational Health Services. The former chairman, Dr. Carl Peterson (U.S.A.) died while in office. Dr. B. Dixon Holland (U.S.A.) was named as a member of this Committee.

The twenty-sixth Council Session adopted two principles relative to medical ethics and medical law as a result of its own efforts in a joint committee studying the subject of international medical law, and the proposed organization of an International Organization on Medical Ethics and Medical Law with national chapters. This new organization would be composed of sociologists, jurists, and philosophers in addition to doctors, and its aim is to codify the principles of medical ethics.

These principles are:

1. The Same Ethical Code must Govern The Doctor In Both Peace and War.
2. It Is The Function of the World Medical Association to Formulate Any Code of International Medical Law and Not the Function of Laymen Even Though They Be Lawyers.

The Council is of the opinion that The World Medical Association should be unalterably opposed to the attempts of outside groups entering a field in which they are not competent.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The value of the natural adrenal steroid, hydrocortisone, and the synthetic steroid, prednisone, in the treatment of nephrosis has been confirmed by clinical studies at the Public Health Service's National Heart Institute.

Drs. Howard C. Goodman, James H. Baxter, Hans Kietel, and Jack Orloff recently treated 18 nephrotic patients by oral administration of either hydrocortisone or prednisone for one to two months. Fourteen of these patients responded favorably, and, though 4 later relapsed, further steroid therapy has again led to relief of their symptoms.

Prednisone is about four times as potent as hydrocortisone, and the two steroids were found to be equally effective in appropriate doses.

The researchers caution that the steroids used are not infallible cures, nor are they free of unwanted side effects. Skin rashes and temporary emotional disturbances were seen when the steroids were decreased or discontinued.

* * *

The National Institute of Neurological Diseases and Blindness, of the National Institutes of Health, U. S. Public Health Service, has initiated a program of Special Traineeships for those who have completed residency training or its equivalent in a medical specialty and desire further training for careers as clinical investigators and educators in fields of neurological and sensory disorders.

This program complements the institute's program of training grants to institutions to aid them in establishing, expanding, and improving residency

training programs in specialties related to neurological and sensory disorders.

Applications for these awards may be made for training at any appropriate institution either in this country or abroad. Information on program and stipends, together with application forms may be secured from the Chief, Extramural Programs, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda 14, Maryland

DEPARTMENT OF THE ARMY

A new vaccine has been developed which has been found to reduce the incidence of hospitalized cases of respiratory disease among recruits by more than 80 per cent, according to a preliminary report to The Surgeon General, the Department of the Army announced recently.

The new vaccine, which reaches its maximum effectiveness within a week after administration, was developed and prepared by the Department of Respiratory Diseases, headed by Dr. Maurice R. Hilleman, at the Walter Reed Army Institute of Research, Washington, D. C. It was evaluated in soldiers at Fort Dix, New Jersey, by a field team headed by Major Reuel A. Stallones and Dr. Ross L. Gauld of the Department of Epidemiology at the Institute.

The new vaccine promises to reduce the number of cases of the acute respiratory illness which have always been a major medical problem to the Armed Forces.

VETERANS ADMINISTRATION

Veterans Administration today announced it soon will conduct one of the first large-scale cooperative projects investigating the value and usage of the new tranquilizing drugs for mental illness.

Dr. Jesse F. Casey, director of VA's psychiatry and neurology service in Washington, D. C., said the research is expected to provide the answers to many questions not now available to medical science.

Veterans Administration has authorized all field stations to discontinue, at their discretion, any commercial-industrial activity which can be supplied by private enterprise "able and willing to do so."

Harvey V. Higley, Administrator of Veterans Affairs, said the authorization is based on the President's policy which requires that private enterprise be given full opportunity to supply VA needs for goods and services.

Mr. Higley instructed the field stations to negotiate with any private firm which expresses definite interest in furnishing goods or services at specific locations, such as bakery goods, cleaning and pressing, ice cream and ices, and biologic products.

A two-year clinical investigation by 11 Veterans Administration hospitals finds that isoniazid (INH), one of the so-called "wonder drugs" for the treatment of tuberculosis, has no beneficial effect on multiple sclerosis.

The report was made by Dr. Benedict Nagler, chief of VA's neurology service and chairman of the VA cooperative study, before the American Neurological Association meeting in Atlantic City, New Jersey.

WORLD HEALTH ASSEMBLY

The ninth World Health Assembly met in Geneva, Switzerland, May 8-26. May 8 in the Palais des Nations, Geneva.

The main purpose of the Assembly was (1) to review and examine the health work assisted by WHO in over 100 countries and territories, (2) to plan future activities both in the traditional and in the new fields in which WHO's help is requested, and (3) to adopt a budget for 1957.

The President of the eighth World Health Assembly was Dr. Ignacio Morones Prieto, Minister of Health and Welfare, Mexico. As outgoing President, Dr. Morones opened the ninth assembly.

INSTITUTE OF LIFE INSURANCE

Formation of the Health Insurance Institute, to speak for the companies in the health insurance business, has been announced at its offices at 488 Madison Avenue, New York. It will be the public relations arm of the Health Insurance Association of America, which was established last April by 243 life and casualty insurance companies writing health insurance policies.

The Institute will operate under the direction and policy control of the association's Public Relations Committee, the chairman of which is Frank S. Vanderbrouk, president of the Monarch Life Insurance Company, Springfield, Massachusetts.

James R. Williams, for the last three years director of public relations of the Health and Accident Underwriters Conference, Chicago, has been named vice president of the Health Insurance Institute. His election took place at a meeting of the board of directors of the Institute of Life Insurance, which is to make available its experience and facilities to the new institute.

Mr. Williams joined the Health and Accident Underwriters Conference in 1947 as editor in charge of publications. He was advanced to assistant director of public relations in 1949 and four years later to director with responsibilities for all public relations activities of the association. He is a vice chairman of the Health Insurance Council and has participated in many forums on health insurance sponsored by national and state hospital and medical groups.

Mr. Williams is a native of Minnesota and a

graduate of Macalester College, St. Paul. He served overseas during World War II and was demobilized in 1945 with the rank of captain.

Mead Johnson Exhibit Wins Top Honors

A scientific exhibit sponsored by Mead Johnson & Company and St. Mary's Hospital of Evansville won top national honors for presentation and correlation of facts at the American Medical Association convention in Chicago, June 11 to 15.

The award, the Billings Gold Medal, was presented to Dr. W. D. Snively, Jr., vice president and medical director of Mead Johnson, by Dr. Thomas Hull, director of scientific exhibits for the A.M.A., in ceremonies at the convention.

Entitled "The Body Fluids in Clinical Practice," the exhibit was presented by Dr. Snively and Dr. Michael J. Sweeney, associate medical director of the firm. Miss Martha Wessner, Mead supervisor of dietetic services, collaborated with the two physicians in preparation of the exhibit.

The prize-winning exhibit outlines a simplified system of fluid therapy which uses body surface area as a yardstick for dosage determination. A book on the system by the two doctors was published recently.

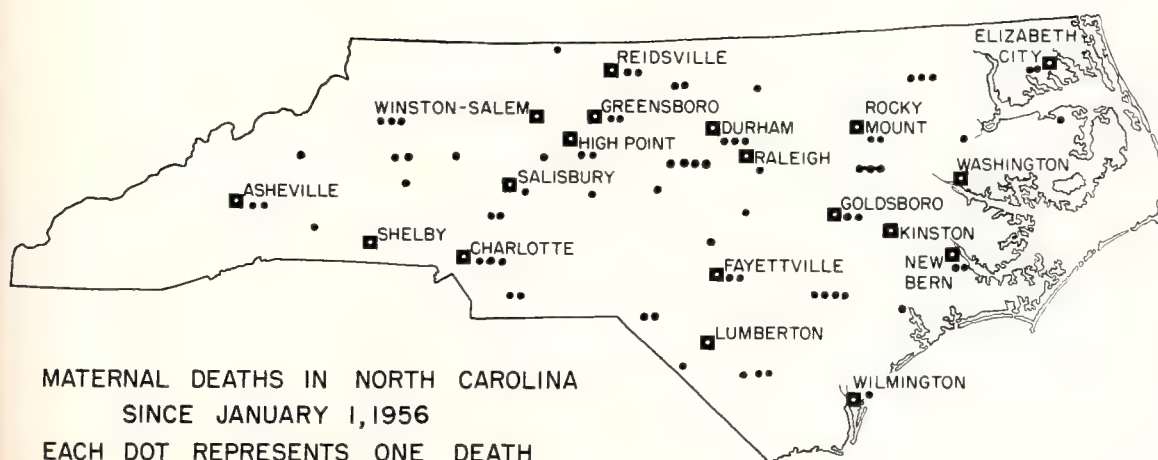
The Month in Washington

Before the end of the year hundreds of thousands of dependents of military personnel, living in all parts of the country, should be receiving their medical care from private physicians and in private hospitals under the new program authorized this year by Congress. While Defense Department has not yet completed regulations to implement the act, the law itself lays down the basic principles governing the program.

The House Armed Services Committee first attempted to decide on a system or systems for furnishing private care, through Blue Cross, Blue Shield, arrangements with state medical societies, commercial insurance or "home town care," such as Veterans Administration successfully employs. But the committee gave up on the problem, and Congress finally tossed it to the Secretary of Defense by stating in the bill that he shall "... after consultation with the Secretary of Health, Education, and Welfare ... contract for medical care for such persons ... under such insurance, medical service or health plan or plans as he deems appropriate." A Defense Department task force now is attempting to decide how to work out the contracts.

Although several groups of dependents will be entitled to medical care, only wives (or husbands) and children of men on active duty will be certified for civilian care. The others will be admitted to military medical facilities on "availability of space" basis. While generally spouses and children of active duty personnel will have a choice of private or military care, there is this limitation: The Secretary of Defense may designate certain areas where private care will not be authorized, if in his opinion those areas have military facilities adequate to care for the service families.

Dependents will be required to pay the following charges: For care in military facilities, subsistence and "in-hospital" charges (set by Secretary of Defense and currently \$1.75 per day); for private care, the same fees or the first \$25, whichever is the larger.



The time limit on private care is 12 months, but if hospitalization still is required after this period the dependent will be protected. In this case the Defense Department will transfer the dependent to a military facility or will make direct payment to a private hospital.

Although regulations will spell out limitations and authorizations in more detail, the law makes the following provisions:

Care in military facilities to include: (1) diagnosis, treatment of acute medical and surgical conditions, treatment of "contagious diseases," immunization and maternity and infant care; (2) hospitalization for nervous and mental disorders, chronic diseases or elective medical and surgical treatments, *but only in "special and unusual cases"* and for not more than 12 months. This would be provided at the discretion of the Secretary of Defense. Dental care not authorized except in unusual cases, while abroad or at remote stations in the United States.

Private care will include: (1) hospitalization in semi-private accommodations up to one year for each admission, including all necessary services and supplies furnished by hospital; (2) medical and surgical care incident to hospitalization; (3) complete obstetric and maternity service, including prenatal and postnatal care; (4) physician or surgeon's services prior to and following hospitalization for bodily injury or surgery.

Under the private care program, some services may be furnished outside the hospital, such as surgery in a doctor's office, x-rays or laboratory tests, "but not what is normally conceived to be out-patient care." If experience shows they can be afforded, additional services may be authorized, but whatever the scope of private care, it cannot exceed that furnished in military facilities." Out-patient care will be furnished by military facilities, but "uniform minimal" charges may be imposed as a restraint on excessive demands.

Notes

Dr. Lowell T. Coggeshall, special assistant to Health, Education and Welfare Secretary Folsom, believes some "wise changes" should be made in medical economics to facilitate payment for the "spectacular" new medical services. He expressed his views in addressing a group at the University of Pennsylvania Medical School.

Russia and eight satellites, out of active participation in World Health Organization for more than six years, now are back in; they agreed to pay 5 per cent of past-due assessments over a 10-year period.

In Memoriam

LOUIS KYLE WALKER, M.D.

The Hertford County Medical Society and the staff of the Roanoke Chowan Hospital, Ahoskie, North Carolina, records the death of one of its faithful members, Dr. Louis Kyle Walker, at the age of 67, on May 24, 1956. He had been ill only a few days, having been taken with a severe pneumonitis, followed by a severe intracerebral hemorrhage.

Dr. Walker was a native of Pender County and received his medical training at the University of North Carolina and the University of Maryland, having graduated in 1911. Following this, he spent two years' internship at the University Hospital, Baltimore, Maryland, following which he took a one year's residency at Maryland General Hospital, Baltimore. Following this, he came to Ahoskie where he began his practice in 1914. Ever since that time he has played an extremely important part in the development of the medical center which we now have, and it was through his efforts, in cooperation with several more local citizens, that the Roanoke Chowan Hospital was built. He was a member of the building committee and was a most faithful supporter of all the improvements and additions to the hospital since its origin. He was extremely active in his county medical society and was president of the society at the time of his death.

Dr. Walker was extremely active in Hertford County politics as well as other civic and social organizations, playing a full part in Red Cross, cancer, and tuberculosis drives. He was also a Mason and Shriner. As a practitioner, he had an extremely active practice, and his patients were drawn from all classes of people. He was loved by one and all.

It is with a sense of extremely deep loss that we record his passing, as he will be missed by all his professional and non-professional friends, and his memory will always remain with us.

We wish to record these sentiments in the minutes of the Roanoke Chowan Hospital Staff, the Hertford County Medical Society, and the State Medical Society, and the First District Medical Society, and a copy of these resolutions will be sent to his family.

Archie Y. Eagles, M.D.
S. A. Saunders, M.D.
Aulander

NORTH CAROLINA

Medical Journal



Vol. 17 No. 8
August, 1956

IN THIS ISSUE:

BLUE SHIELD—BLUE CROSS AND THE PHYSICIAN — WARREN W. FUREY, M.D.

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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 17

AUGUST, 1956

NUMBER 8

Let's Look at Blue Shield — Blue Cross and the Physician

WARREN W. FUREY, M.D.

CHICAGO

Blue Shield—Blue Cross—words so familiar to all of us that we too often take them for granted. We seldom stop to realize how these plans have grown, in a relatively short time, from a very small idea to a large movement affecting a vast number of people.

Origin and Growth

As many probably know, the first hospital plan that preceded Blue Cross as we know it today was started by Dr. Justin Kimball, head of Baylor University Hospital, and a group of school teachers in Dallas, Texas, in 1929, only 26 years ago.

The first medical-surgical plan which led to the Blue Shield movement was set up in California, in 1939—10 years after the beginning of the Dallas plan. This plan was known as the California Physician's Service. It was sponsored and organized by doctors with the aim of helping their patients in the low income brackets, many of whom seemingly lived from hand to mouth.

Currently a total of 86 Blue Cross Plans with more than 50 million members dot the United States, Canada, and Puerto Rico. This number represents more people than now live in the entire country of France. In fact, almost anywhere you go—down a busy city thoroughfare or a quiet country lane—about every fourth person you meet is a member of some Blue Cross plan.

More than 36 million people in the United States belong to Blue Shield. The plan with which I am associated in Illinois and both of your plans here in North Carolina are included in the 76 Blue Shield Plans across the country. These plans have been designed to help your patients and mine meet the increasing cost of medical, surgical, obstetric

and other professional services, in an expanding medical economy. It might be pointed out that not infrequently the cost of medical care, as reflected in doctors' charges, has been far behind the rapidly rising cost of many other things in our economy. That 36 million people now belong to Blue Shield shows the growing economic importance of the plans to the public and to the physician.

Blue Shield Plans have grown, like Topsy, to meet the different needs and ideas and customs of people in various parts of the country. Some of them, like those of Ohio, Indiana, and our Blue Shield Plan in Chicago, were started as indemnity plans—that is, they provided a specific dollar allowance toward the doctors' bills for different types of services. Other plans, including yours in North Carolina, the California Physician's Service, and the Michigan Medical Service, started as service plans. For the most part the latter were founded on the ideal of providing complete medical service to people within a certain income bracket, while preserving the physician's traditional right to charge his patients in the middle and higher income brackets his usual fees.

Union-Management Plans

One of the problems with many national union-management attempts to provide health services for employees is that the benefits as selected by the union and management representatives have, at times, been much below the standard schedule being offered to most Blue Cross-Blue Shield subscribers in a given area. These discrepancies may be due to efforts to keep the cost of membership down, to lack of knowledge, or

to an inadequate yardstick as to what constitutes a proper Blue Shield contract.

This situation, of course, makes it not only difficult but nearly impossible for local plans, at the local level, to offer a contract which does not meet the local minimum schedule of benefits.

In addition, there is a tendency to offer limited Blue Shield coverage such as surgical benefits only, medical benefits only, or a combination of these services with obstetrics. Too frequently omitted are some necessary and important services such as anesthesiology, pathology, and radiology. In instances where the Blue Cross Plan includes these services, friction is aggravated. Misunderstandings between physician and hospital as to what constitutes the practice of medicine are created and there is the desire on the part of some hospitals to hire doctors for whose services the hospitals do the billing—with, of course, profit to the hospital.

This situation led to the recent court action in Iowa, which pointed up the necessity not only in anesthesiology, pathology, radiology, and other specialties, but in all fields of medicine . . . of a united effort to uphold the right of doctors, and only doctors, to practice medicine against the many, including government, who, now and again, seek to intervene, a development which of course could, and perhaps would, lead eventually to the socialization of medicine.

Protecting Physician Control

There are ways to assure physician control of medicine in insurance plans. I would like to cite one effort which grew out of attempts by the national commissions of Blue Cross and Blue Shield to prepare a standard contract for enrollment of national accounts.

After carefully studying the proposed national program, our Blue Shield Plan, recognizing certain shortcomings and attempting to correct and improve the proposal, offered the following amendment:

With the American Medical Association and many other medical associations, the Board of Trustees of Illinois Medical Service believes that anesthesia, pathology, psychiatry, and radiology (along with any and all other aspects of health care that require the direction of a physician in diagnosis or treatment) constitute the practice of medicine.

We further agree with the American College of Surgeons and the American Academy of General Practice which have recommended that each physician who par-

ticipates in the care of a patient should be identified to such patient in the billing for his services.

Moreover, it is the considered judgment of the Board of Trustees of Illinois Medical Service that whenever professional services become the basis upon which insurance benefits are payable, such benefits should be classified as professional benefits and preferably should be provided within the terms of a professional benefit contract. As an alternative, when medical benefits are included in a contract providing primarily hospital expense benefits, such medical benefits shall nevertheless be qualified as professional medical benefits.

Finally, the Board of Trustees of Illinois Medical Service does not believe that insurance contracts should influence the evolution of the patterns of medical and hospital care, or the conditions under which medicine shall be practiced.

For these reasons, the Board of Trustees of Illinois Medical Service strongly urges that in any instance where a Blue Cross offering to a national account includes professional medical benefits in the subscriber's certificate then such professional benefits shall be included in the Blue Shield subscriber's certificate under this proposal.

We suggest that one way to effect this desirable end is to amend the "Scope of Benefits" to read as follows:

In each of the two programs outlined above (this means either indemnity or service) the following segments must be Offered By Individual Plans, and whenever any or all such segments are included in a hospitalization contract currently offered to a purchaser, then such segment of segments must be included in the Blue Shield contract available to such purchaser.

The Blue Shield Commission approved this action in Boston last November. There is no reason, given a spirit of cooperation and an honest desire to see medical care properly under the control of physicians, why this proposal, accepted by the Blue Shield Commission on a national level, cannot be applied locally. Friction, misunderstandings and acid debates would be reduced, and certainly doctors would be more confident about the eventual goals of some hospital representatives.

Dealing with Current Trends

Since World War I we have seen the rise of communism, socialism, and general world unrest. Elsewhere, we have seen governments exploit the common man, leading him to revolt. We have seen governments foster the movement to help socialize their own political parties and the effort to communize the world. We have seen some in our own government who would woo the common man, with suggestions to coddle him from

the cradle to the grave. We have heard glowing promises of what the government could do for us, with privileges described as bigger and better than those our parents and grandparents enjoyed.

Many leaders of medicine are ever alert to trends that could lead to the socialization of the profession. Many of us, however, believe that we in America are fortunate to have Blue Shield and Blue Cross as the stop-gap against the socialization of hospital and medical care.

On the other hand, doctors might maintain a certain skepticism regarding these insurance organizations and their exact role in medical care. For they, like government, may grow so big and all-enveloping that the physician may waken some dark morning to discover that he is no longer working for his patient but for the gigantic insurance program created by himself.

There are areas of medical care in which efforts must be made to prevent Blue Cross and Blue Shield from being so distorted that government intervention will appear to be the only solution. As physicians we have more than a passing interest in the situation. It is our responsibility to avoid misuse of Blue Cross and Blue Shield services which might well lead to dues too high for the average person to carry.

We also share the responsibility of guiding the programs of Blue Cross and Blue Shield to serve our patients more efficiently and to make sure that all phases of medicine are fairly represented in the benefits.

Another problem, over and above the "fair" representation of various branches of medicine, is the degree to which patients are being driven. Are certain insurance contracts so written that the patient is unnecessarily forced to go to the hospital? Are there subterfuges currently in vogue which find patients in hospitals, not because they need hospitalization, but because their diagnostic tests are covered by hospital insurance?

I am suggesting here some corrective measures, with controls to avoid abuse, whereby office practice can be brought more equitably into the insurance picture and where unfair competition, sometimes set up between hospital and office through the language of insurance, can be circumvented. This, gentlemen, is a plea for some healthy free enterprise.

Achieving a Uniform Program

One of the big problems Blue Shield and Blue Cross must solve, if they are to survive, is that of a uniform national program. Working together, Blue Cross and Blue Shield have endeavored to develop a pattern for enrollment of national accounts. A special committee on National Enrollment was appointed by the Blue Shield Commission, national coordinating body of all Blue Shield plans. It has tried hard to find a common ground on which to build a national program. One of these efforts has been mentioned before.

There are, of course, other problems: Because union representatives must not discriminate among their constituents, and because management representatives lean toward uniformity for plants located in different sections of the country, most union-management agreements spell out in detail the exact medical and hospital care benefits to be provided. This procedure puts Blue Cross and Blue Shield at a disadvantage, because there is, as yet, no uniform nationwide Blue Cross or Blue Shield contract. Every Blue Cross Plan and every Blue Shield Plan has been set up to serve the needs of the community in which it operates—with the result that uniformity of benefits is the exception rather than the rule.

To overcome the lack of uniformity Blue Cross Plans established Health Service, Inc., in 1949, and Blue Shield Plans established Medical Indemnity of America in 1950. Although organized on a non-profit basis, both of these agencies are stock insurance companies.

When these two national bodies were established, it was generally believed that national accounts wanted more benefits for medical and hospital care than many local Blue Cross and Blue Shield plans were set up to provide. These two agencies were established, therefore, to insure excess coverage in areas where local benefits were not broad enough to satisfy a national account, and also to provide coverage in areas not served by local plans.

Contrary to expectations, union management agreements affecting large numbers of employees in different areas only occasionally called for coverage equivalent to the best Blue Cross and Blue Shield benefits available in these areas.

As an answer to this problem, the National

Enrollment Committees of Blue Cross and Blue Shield have come up with a proposal for minimizing the differences resulting from attempts to provide uniform service and indemnity contracts. Under this proposal Blue Shield plans offering service benefits will offer a high income limit program and a low limit program. Basically, the idea is that each service plan will write two contracts: one for families with incomes ranging from \$3,000 to \$4,000, and another, costing slightly more, for people with incomes up to \$6,000. The latter will provide a schedule of benefits which physicians may be willing to accept in payment for services to people in the higher income bracket. Some of us see a danger of service plans usurping the traditional right of the physician to set his own fees. In some measure, however, this right is preserved by allowing the physician to charge whatever additional fees ordinarily would be charged for such services—that is, for patients with incomes above \$6,000.

The really difficult nut to crack is the determination of a schedule for indemnity plans which will, in effect, match the fees that doctors would ordinarily charge for service to people in the same brackets. The national committee has proposed an indemnity insurance contract that provides a \$300 schedule of benefits, with a top fee of \$300 for certain services. This closely parallels the contract of the service plans and will be reasonable to offer on a national contract . . . where a national employer, or union, or the federal government wishes to secure uniform benefits for its people across the nation.

In the nine years of my efforts with our Blue Shield Plan . . . this is the best answer I have seen. Let us hope that it works.

Other Problems

Other areas of friction between Blue Cross and Blue Shield Plans, and between Plans in each category are many and varied.

Geo-economic problems

For example . . . geographic problems vary from locality to locality. This explains the desire to keep local plans and their local benefits on a city-to-city, county-to-county, or state-to-state basis—whichever meets the local problems best. This is particularly true of Blue Shield Plans . . . where service benefits or schedules of allowances have been developed locally to serve their own best purposes.

In some areas of southern Illinois, for

example, where incomes are low and are affected by drought and unfavorable employment conditions, there are physicians who still charge \$1 for office calls. There are hospitals where a private room can still be had for \$8 a day. However, these areas are fast disappearing. There are also doctors working in a few small town hospitals where the fee for delivering a baby is still considerably less than the \$60 Blue Shield pays for a normal delivery and the \$100 for a cesarean section. Illinois membership dues reflect these payments. In paying more than the fees charged by doctors in any particular locality, therefore, we are, in a sense, helping to raise the cost of medical care. In other areas, because our fees are far below what many physicians charge people of a higher income level, our critics fear that we are pushing the doctors' charges down and thus are attempting to set fees.

One of the threats cited by opponents of major medical plans is that such plans will push the cost of medical care right out of the book in some cases. In all of these instances there are dangers in all directions. That is why it is up to every physician to help guide the plans in establishing schedules that are realistic; in making sure that doctors are adequately compensated for services, and in making sure that doctors continue to exercise their time-honored privilege of setting their own fees.

Duplication of plans

Competitive situations in certain areas also add to the frictions and problems besetting Blue Shield and Blue Cross Plans. It is confusing to the public generally, to members, and to doctors to have more than one plan bearing the same Blue Shield or Blue Cross insignia and actively competing for members in a given area. North Carolina, I understand, has two Blue Cross Plans and one Blue Shield Plan, and one of your Blue Cross Plans offers a medical-surgical plan with benefits similar to those of Blue Shield. Illinois has four Blue Shield Plans, of which two are in active competition in a large number of counties. At the same time we have two Blue Cross Plans that are actively competing for members outside of the Chicago area. The reason for all this goes back to the fact that originally a number of independent plans sprang up in several different large city areas. Later some of these merged

to form our companion Blue Cross Plan in Chicago, and we expanded with them to encompass most of the counties in the state. However, there still remain some of the smaller plans which, in order to hold down operating expenses, have also extended their territory. We now have a somewhat awkward competitive situation in some areas, which tends to aggravate the discord in hospital and physician relations.

Miscellaneous

Bringing problems into the light of day sometimes helps to alleviate what may seem like almost impossible situations. This has been true to some extent in hospital-physician relations. While I would not recommend that all of us take our problems into courts of law for settlement, nevertheless I believe that much good has come out of the Iowa dispute. In the first place, it has awakened physicians generally, outside of the specialties affected, to the fact that hospitals in some cases have been controlling some aspects of medical practice. It is heartwarming to see how the Iowa Medical Society—representing *all* the physicians in Iowa—came to the forefront and helped financially as well as morally and spiritually in bringing to light the different problems at stake.

These situations are reflections of the trends and problems that face everyone concerned with the practice of medicine. They serve to point up and reflect facts that we as doctors need to face: not only hospitals but other agencies including the federal government, whether under a Republican or Democratic administration, are interested in all

phases of medical practice and have in one way or another at times attempted to intervene.

Conclusion

Blue Cross and Blue Shield have made remarkable progress. Their service to the American public has been such that others have followed the pattern they established. Physicians and hospitals can be proud of their part in the success of this movement. With all the progress that has been made, it should be remembered that Blue Cross and Blue Shield, while outstanding in this field, are not perfect. There is need for work and it is up to us to do it.

Thus we face a kaleidoscope of changing trends and problems, one in which the medical profession and the high ideals on which it stands are sometimes threatened. Therefore, with renewed determination we must fight to preserve the high ideals of service which doctors have held through the ages. We must keep pace with modern scientific progress in our professions, and, if we are to achieve our destiny as physicians, we must seek to remain free individuals, working in a free economy. We must not become public minions who, for a salary, see so many people and perform so many operations.

Physicians share with Blue Cross and Blue Shield the responsibility of guiding their program toward ends that will be of greatest benefit to our patients, our community, and our nation; of keeping the practice of medicine free in the fullest sense, and of keeping our beloved country always a land of free enterprise and opportunity.

The manner in which the National Health Service was introduced was unfortunate. It was heralded as a free service in such a way as to lead to irresponsible demands, not only for time-absorbing service, but as something which the patients' weekly contribution entitled them to receive on demand. The development of this "entitlement" complex led to full surgeries and high prescription rates. This made it more difficult to give that extra time which modern medical science requires. The erroneous belief of many patients that their insurance contributions pay for the whole of the benefits of the Health Service has altered their attitude to the whole profession and made them more prone to be litigious, although, of course, the free legal side scheme has greatly encouraged this. —Hall, A.: *The State of General Practice Today*, Brit. M.J. 2:4984 (July) 1956.

Newer Developments in the Etiology and Treatment of Atherosclerosis

E. HARVEY ESTES, JR., M.D.

DURHAM

Recent years have seen a distinct change in the prevailing attitude toward atherosclerosis. This disease was once thought to be related to aging, and consequently inevitable. It is now considered a metabolic disorder, perhaps accentuated by certain factors in our mode of living, which is potentially preventable and even reversible. This change in outlook has resulted in a tremendous research effort directed toward clarifying the disorder, and especially toward elucidating those factors in our way of life which might produce or accentuate it.

Etiology

Metabolic factors

At present a considerable body of evidence supports the view that atherosclerosis is primarily the result of a disorder of lipid metabolism:

1. It has been known for a great many years that cholesterol is the major component of the atheromatous lesion. More recently it has been shown that the lipid pattern of the early atheroma is similar to that of the blood, suggesting that the atheroma fat is derived from fat in the blood⁽¹⁾. There is evidence that the aorta, as well as most other tissues, is capable of synthesizing cholesterol locally⁽²⁾. The relative importance of this mechanism is not known.

2. Induction of hypercholesterolemia in the experimental animal produces atherosclerotic lesions grossly and microscopically similar to those seen in the human disease. This effect, first demonstrated in the rabbit, has now been demonstrated in all the usual laboratory animals.

3. Hypercholesterolemia such as is seen in nephrosis, hypothyroidism, and familial xanthomatosis is accompanied by increased atherosclerosis in humans⁽³⁾.

4. As a group, individuals with atherosclerosis show a higher level of blood cholesterol than do normal individuals⁽⁴⁾. This is not a

striking difference, the "overlap" being large. It has been pointed out that the "normal" cholesterol in this country may actually be a relative hypercholesterolemia in contrast with that of other nationalities or races, and might partially obscure the difference between these groups.

Because of the relatively undramatic differences in cholesterol levels, it was logical to seek other lipid components which might more clearly differentiate the normal from the atherosclerotic group. The cholesterol-phospholipid ratio has been found to be disturbed in patients with coronary heart disease⁽⁵⁾. Others have found that specific lipoproteins, such as beta lipoprotein as seen on electrophoretic studies⁽⁶⁾ and SF 12-100 lipoproteins as seen on ultracentrifugation studies⁽⁷⁾, are increased in atherosclerotic individuals.

At present there is no clear evidence that any one of these more subtle measurements of blood lipid components is more useful than any other in distinguishing the atherosclerotic from the normal individual, and no clear evidence that any of these measurements are superior in this regard to a simple measure of serum total cholesterol.

Consumption of fat

Of more immediate interest perhaps is the evidence that these abnormalities in lipid or cholesterol metabolism might be related to or even caused by factors in our way of living:

1. The level of cholesterol, beta lipoprotein, and the SF 12-20 ultracentrifugal fractions can be reduced by reduction in the percentage of dietary calories derived from fats⁽⁸⁾. The cholesterol content of the diet has no effect on these levels.

2. Populations known to have relatively little coronary heart disease are characterized by a low consumption of fat, generally less than 20 per cent of the total calories consumed in contrast to the American level of 40 per cent⁽⁹⁾. The average level of serum total cholesterol is also lower in these populations than that observed in the United States.

3. The percentage of total dietary calories derived from fat increased steadily in the United States from 1910 to 1950. During this same period there has been a steady increase in the incidence of degenerative heart disease in this country which cannot be explained by the aging of the population⁽¹⁰⁾.

4. Several comparisons of the same population group in times of dietary plenty and in times of relative dietary lack⁽¹¹⁾ have been made. These studies have shown a striking decrease in mortality from atherosclerotic diseases during the periods of dietary lack, with a corresponding rise after this period has passed.

Thus there is evidence that a disturbance in lipid and/or cholesterol metabolism exists in atherosclerotic individuals. There is evidence, in whole population groups, of a relationship between the diet and the level of blood lipid and/or cholesterol, and between the diet and the incidence of diseases related to atherosclerosis. The intake of dietary fat, not cholesterol, seems to be the most important factor.

Other factors

It should be pointed out that factors other than dietary or nutritional have been implicated in the production of atherosclerosis. Muscular activity, hormonal patterns, hereditary factors, occupational factors, and local vascular factors are all felt to play a role, probably in conjunction with diet. There is almost certainly an interplay between these various factors in the individual patient, and, though dietary factors seem more important at the moment, further information might drastically change this concept.

Management

Of particular importance to the practicing physician are the implications of such evidence with regard to the handling of patients with diseases due to atherosclerosis. Is there evidence that restriction of dietary fat will reverse or even favorably influence the course of such diseases? There is one fact which prevents the ready accumulation of such data. There is no reliable measure of the presence or of the degree of atherosclerosis in a given individual. Such data must be based on comparisons of survival times of treated and untreated groups. These studies, to be valid statistically, require five to ten years for completion. Only one such study is available at the present time. Others are

in progress. Morrison⁽¹²⁾ has followed a group of 100 patients with coronary thrombosis and myocardial infarction over a period of eight years. One-half were maintained on their pre-infarct diet; the other half were placed on a low fat, low cholesterol diet. The survival rate for the non-treated group was 24 per cent, for the treated group, 56 per cent. The low fat, low cholesterol diet resulted in significant weight loss; therefore the relative value of fat restriction and weight reduction could not be evaluated.

It is felt that present evidence is sufficient to justify the use of a low fat diet in the treatment of patients with coronary heart disease and other atherogenic diseases. Such a diet, limiting fat intake to 25 to 30 Gm. per day, has been found to be well tolerated by the patient, especially when the basis for its use is explained. Its use is almost invariably accompanied by significant weight reduction.

The high incidence of coronary heart disease in this country raises the question as to whether a permanent, but perhaps less drastic, reduction in the level of dietary fat should be advised for the population as a whole. This would involve retraining a whole generation of cooks, rewriting hundreds of cook books, and even more, retraining the tastes of the whole population; yet the tremendous toll of the atherosclerotic diseases makes such an endeavor worthy of serious consideration.

Summary

Atherosclerosis is a disease associated with a disturbed metabolism of lipid and/or cholesterol. There is evidence that dietary factors play an important role in its development. Many other factors also play a role. Present evidence is felt to justify the inclusion of a low fat diet in the therapeutic program of the patient with any of the atherosclerotic diseases. A prophylactic, less drastic reduction in the level of fat intake for the population as a whole is felt to be worthy of serious consideration.

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Selection of Patients for Mitral Commissurotomy

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There is now conclusive proof⁽¹⁾ that the majority of patients with disabling mitral stenosis, when properly selected, will benefit from mitral commissurotomy. The purpose of this paper is to emphasize factors which must be carefully weighed before a decision as to surgery is reached.

Criteria

In evaluating a patient for mitral commissurotomy, two absolutely essential criteria must be met: (1) evidence that mitral stenosis is present, and (2) evidence of progressing disability.

Evidence of mitral stenosis

In most instances the stethoscope will provide ample evidence of mitral stenosis. The characteristic murmur is usually heard best at the mitral area, and with the use of the bell rather than the diaphragm of the stethoscope. Characteristically, the murmur is rumbling, low pitched, and diastolic in time. It may, however, be presystolic, mid-diastolic or protodiastolic, or it may actually be audible throughout diastole. Although the murmur will be heard in the great majority of patients, it is generally recognized that advanced mitral stenosis

is sometimes present when no murmur is audible.

Accessory physical signs which are useful in suggesting mitral stenosis are: (1) an opening snap of the mitral valve, (2) accentuation of the first heart sound, and (3) accentuation of the heart sound in the pulmonic area.

Progressive disability

Equally as important as the correct diagnosis is unequivocal evidence of progressing disability. Progressive contraction of the mitral valve with narrowing of the mitral orifice produces the signs and symptoms of pulmonary embarrassment. Mechanical obstruction to the free passage of blood from the left atrium to the left ventricle results in pooling of blood in the pulmonary circuit.

Evidence of such progression is best obtained through a very careful and pointed history. Repeated bouts of pulmonary edema, hemoptysis, or inability to perform routine daily tasks are irrefutable indications of pronounced pulmonary congestion. Navigation of steps or inclines may make excessive demands on the patient's pulmonary reserve. Women patients may complain that the simplest of household duties, such as sweeping, dishwashing, and bed-making, are unduly time-consuming because of frequent pauses brought on by breathlessness.

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The correct diagnosis of mitral stenosis and a history of progressing disability are fundamental considerations in the evaluation of a patient for mitral commissurotomy. However, there are many other variables that must be cautiously weighed.

Factors To Be Considered in Pure Mitral Stenosis

Functional classification

Assuming the presence of pure mitral stenosis, at what functional stage is the recommendation of surgery justified? Employing the generally accepted New York Heart Association classification⁽²⁾, surgery has been most rewarding in the Class II plus and Class III patients. The natural course of mitral stenosis is much too variable and the risk of surgery too great for one to advise or consider prophylactic commissurotomy in the Class I patient. On the other hand, even though the risk of surgery is greatly increased in the Class IV patient (reported as 25 to 30 per cent), Ellis and Harken^(1b) have shown that, even in this group, surgery is not as dangerous as continuation of medical treatment alone.

Age

In an early article, Bland⁽³⁾ stated that benefit from surgery is rare in patients 50 years old and older. Recent reports^(1b,4) indicate that within a given functional classification there is no significant difference in the surgical mortality between these and those under 50 years of age. On the other hand, one must be extremely wary with regard to patients under 20 years of age. When a patient in this age group is sufficiently incapacitated to require surgery, the presence of active rheumatic carditis is common.

Atrial fibrillation

Harken and Ellis's review of their first 500 patients^(1b) emphasizes that in patients with atrial fibrillation their surgical mortality was approximately three times

greater than in individuals with normal sinus rhythm. Many of the patients with atrial fibrillation were in Class IV functionally, but this does not disprove the fact that fibrillation increases surgical risk. The incidence of embolic phenomena is approximately doubled by the presence of atrial fibrillation. This is not, however, a contraindication to surgery. Furthermore, it is erroneous to attempt to revert patients with atrial fibrillation to normal sinus rhythm prior to surgery, as it has proved impossible to predict which patients will fibrillate following surgery.

Embolization prior to surgery

Evidence from Ellis and Harken's experience^(1b) indicates that embolism prior to surgery definitely increases threefold or more the hazard of an embolic episode at the time of surgery. It is noteworthy, however, regardless of whether atrial fibrillation is present, that surgery reduces the incidence of subsequent emboli by approximately 90 per cent^(1b). Removal of the atrial appendage as a site for thrombus formation, as well as the decreased atrial stasis resulting from a larger valve opening, may both be important factors in explaining this difference.

Calcification of the mitral valve

Gagnon^(1c) described calcification of varying degrees in one third of the patients in his review. This incidence is somewhat higher than that generally encountered, but supports the contention that calcification of the mitral valve is not uncommon. Although its presence increases the danger of emboli during surgery and the technical difficulties of the procedure, it has little influence on the decision as to whether surgery is warranted. Rarely, the fluoroscopic finding of mitral valve calcification will make the diagnosis of mitral stenosis certain, even though the classical clinical stigmata are absent.

Pregnancy

A number of successful commissurotomies have been done during pregnancy⁽⁵⁾, but this is not the ideal time for the procedure. The physiologic changes of pregnancy—namely, increased oxygen consumption, increased cardiac output, and hypervolemia—aggravate the problems of mitral steno-

*Class I: Patients with a cardiac disorder without limitation of physical activity. Ordinary physical activity causes no discomfort.

Class II: Patients with a cardiac disorder with slight to moderate limitation of physical activity. Ordinary physical activity causes discomfort.

Class III: Patients with a cardiac disorder with moderate to great limitation of physical activity. Less than ordinary physical activity causes discomfort.

Class IV: Patients with a cardiac disorder unable to carry on any physical activity without discomfort.

sis. Pregnancy will often increase the patient's functional classification by at least a grade⁽⁶⁾, and it is not uncommon for the diagnosis of mitral stenosis to be made for the first time during pregnancy. This change in functional ability is not permanent, however, and once pregnancy is terminated, reversion to previous functional ability is usual. Furthermore, the frequent finding of physiologic murmurs during pregnancy makes the evaluation of the degree of mitral regurgitation most difficult. Another important reason for preferring to avoid surgery during pregnancy is that many of the benefits from commissurotomy are not immediate, but appear over a period of weeks and months.

If cardiac failure appears in the first trimester, a therapeutic abortion is preferable to mitral surgery except under the most unusual extenuating circumstances. However, for the patient who has passed the fourth month of pregnancy and has not passed the period of maximal hypervolemia, commissurotomy is more desirable than hysterotomy and should be done if the situation is grave.

Mitral Regurgitation

The association of some mitral insufficiency with mitral stenosis is common. Bland and Jones⁽⁷⁾ found an incidence of mitral valve involvement in rheumatic carditis of 98 per cent. Of these patients, only 11.7 per cent were classified clinically as having "pure" mitral stenosis, while 75 per cent had both mitral stenosis and mitral insufficiency.

The degree of mitral insufficiency is often difficult to assess. In the presence of a grade 3 plus or greater (on a scale of 6) apical systolic murmur which radiates widely to the left axilla and posteriorly, one must admit the presence of significant mitral insufficiency. Furthermore, if a patient presents no evidence of hypertension or aortic valvular disease but is found by electrocardiography to have left axis deviation, and by x-ray and/or electrocardiography to have left ventricular hypertrophy, the presence of considerable mitral insufficiency cannot be denied.

The finding of a systolic pulsation in the left atrial region on fluoroscopic examination is also valuable in detecting the pres-

ence of mitral regurgitation. When seen, this usually denotes a considerable degree of regurgitation. Angiocardiology and cardiac catheterization likewise can frequently aid in demonstrating the presence of mitral regurgitation. The homogeneous mixture of dye in both the left atrium and left ventricle on angiocardiology or the finding of a large pulsatile component coinciding with ventricular systole in the pulmonary "capillary" pressure tracing at cardiac catheterization is supporting evidence of significant regurgitation. Although all these signs are helpful in detecting mitral insufficiency none are absolute criteria in assessing its degree.

The concern for properly evaluating the presence and degree of regurgitation stems from surgical experience. Where mitral insufficiency has inadvertently been created at the time of commissurotomy, progressive heart failure has frequently resulted.

Mitral stenosis can now be effectively handled surgically. The surgical procedures for mitral insufficiency are not yet satisfactorily established.

Other valvular disease

Aortic regurgitation

Approximately 42 per cent of patients with rheumatic mitral valvulitis have been found to have some degree of aortic regurgitation⁽¹⁰⁾. The degree of aortic insufficiency varies widely, however, and its significance is somewhat more easily assessed. The presence of a high-pitched, decrescendo, diastolic murmur in the second or third left intercostal space at the sternal border is not sufficient evidence on which to base a diagnosis of aortic insufficiency. On the other hand, this sign together with a widened peripheral pulse pressure, water-hammer pulse, and "pistol shot" sound over the femoral artery is diagnostic of significant aortic insufficiency. Procedures for the correction of aortic regurgitation are still undergoing change, and at present significant aortic insufficiency is a contraindication to mitral commissurotomy unless the surgeon is prepared to correct the aortic valvular lesion also.

Aortic stenosis

Aortic stenosis was formerly considered a contraindication to mitral commissuro-

tomy. More recently an adequate procedure for correcting this condition has been devised⁽⁸⁾, and the hazard of mitral commissurotomy in the presence of unrecognized aortic stenosis is no longer so great. The murmur of aortic stenosis may be masked in the presence of mitral stenosis because of the decreased cardiac output which accompanies mitral narrowing. Following mitral commissurotomy the ascending aorta should be palpated for the presence of a systolic thrill. If a thrill is present, aortic commissurotomy should be considered at the time. The final decision should depend on direct pressure analysis while the chest is open⁽⁹⁾.

Contraindications

There are only two absolute contraindications to commissurotomy: (1) active rheumatic carditis and (2) subacute bacterial endocarditis.

Active rheumatic carditis

The greatest difficulty in evaluating patients for commissurotomy stems from the lack of a specific test for active rheumatic fever. One must consider the complete gamut of signs, symptoms, and laboratory procedures. After considering all these, including C-reactive protein, antistreptolysin titer, sedimentation rate, leukocyte and differential counts, one cannot always say with certainty whether rheumatic activity is present. If the evidence suggests the presence of an active process, surgery should be delayed until there no longer is evidence of activity. Surgery in the presence of rheumatic activity is almost always disappointing. Not only is there the danger of aggravating the active process, but also the danger of subsequent recurrence of mitral stenosis.

Subacute bacterial endocarditis

The diagnosis of subacute bacterial endocarditis, like active rheumatic carditis, is not always easy to make. The most astute diagnostician must frequently utilize his total abilities in addition to adequate laboratory facilities.

In the presence of untreated subacute bacterial endocarditis there is imminent danger of dislodgement of a verrucous growth from the valve leaflet. Such a verrucous embolus, frequently septic, would easily be dislodged during mitral valve

surgery. For this reason primarily, untreated subacute bacterial endocarditis is considered a contraindication to commissurotomy^(1f,9,10). Adequately treated subacute bacterial endocarditis, on the other hand, is not a contraindication to surgery.

The Post-Commissurotomy Syndrome

A rather frequent and puzzling complication of mitral commissurotomy is the so-called "post-commissurotomy syndrome." The incidence of this complication has varied widely, ranging from as low as 10 per cent to as high as 62 per cent^(1c,11). It has been reported as early as 10 days and as late as 14 months postoperatively. There has, as yet, been no generally accepted etiologic explanation of the symptoms. Fever and chest pain are the most common. The most frequently noted laboratory findings are leukocytosis and a positive C-reactive protein. No definite correlation between the finding of Aschoff bodies in the amputated auricular appendage and the incidence of the syndrome has been found⁽¹¹⁾. Treatment has varied in reports from several centers. Apparently, antibiotics exert no influence on the course of the disease. Salicylates^(1c,10) and adrenocortical hormones⁽¹²⁾ have been used with success. It is believed by some⁽¹¹⁾ that the postoperative administration of salicylates decreases the morbidity of the syndrome. A similar clinical syndrome has been reported in patients undergoing other types of cardiac surgery⁽¹¹⁾. For this reason, it is believed that the post-commissurotomy syndrome is the result of pericardial and pleural trauma at the time of surgery⁽¹¹⁾. Although one cannot categorically deny the possibility that the syndrome represents a reactivation of rheumatic fever, the present evidence and the natural history of rheumatic fever indicate that it is at most a variant of the disease if it is at all related.

Does Mitral Stenosis Recur After Surgery?

This question cannot be answered with certainty at the present time. The procedure is relatively new, and long term follow-ups are just beginning to be reported. It is generally believed that mitral stenosis does not recur unless rheumatic fever is reactivated. Many of the patients who have required a second operation have been those who, during the early days of the procedure,

received only valvular dilation, rather than successful fracture.

Results

Postoperative results

In a well selected group of patients, at least 75 per cent will show significant clinical improvement over a period of weeks and months following surgery^(1,b,c,d,e). As discussed earlier, the results are not so gratifying in some patients, depending upon the variables in an individual patient. Complete relief of all symptoms should not be anticipated by the physicians or most of all by the patient. With successful commissurotomy, marked relief of disabling symptoms may be anticipated, but the procedure should not be considered a "cure" for mitral stenosis.

Surgical mortality

The surgical mortality varies, depending on which patients are chosen for the procedure. The mortality for the Class IV patients is at best near 25 per cent. It is well to emphasize that this risk has been shown to be considerably less than the risk of medical management alone. Dependent upon the presence or absence and degree of other variables mentioned, the surgical mortality has been rather consistent in reports from various clinics^(1a,b,c,e). The presence of atrial fibrillation at the time of surgery increases the surgical mortality at least threefold^(1b,e). Embolization prior to surgery and calcification of the valve increase the hazard of emboli at the time of surgery and in this respect increase the surgical mortality. In a well selected series of functionally Class II plus to Class III patients in whom none of the variables are significantly operative, the surgical mortality should not exceed 5 per cent and in experienced hands probably would not exceed 2 to 3 per cent at the present time. The natural history of mitral stenosis and the complications that may be prevented by surgery put this mortality in the realm of a reasonable risk.

Summary

1. Factors which must be carefully weighed in considering a patient with mitral stenosis for surgery have been reviewed.

2. In the presence of either subacute bacterial endocarditis or active rheumatic fever, surgery should not be done.

3. With the proper selection of patients, the results of mitral commissurotomy are gratifying.

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Three Centuries of Obstetrics in North Carolina

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History has not recorded the growth of obstetrics in North Carolina. Therefore, a search for reliable material has been made and the results are presented.

Sources of Material

The most dependable information regarding early obstetrics in North Carolina is found in the state's earliest official medical records, as follows: "The Minutes and Proceedings of the North Carolina Medical Society" from 1799 through 1804; "The Transactions of the North Carolina Medical Society" from 1849 through 1880; and both series of the *North Carolina Medical Journal*, from 1858 to 1860, and from 1878 to 1900. These sources were supplemented by early newspaper articles and other lay publications, abstracts from historic articles and texts, scientific articles of historic note, and numerous personal communications.

Most of the information involving the North Carolina State Board of Health, maternal and infant mortality, obstetric nursing, and midwifery, was found in the *Health Bulletin* of the North Carolina State Board of Health.

The Eighteenth Century: Conception and Development

Many handicaps delayed the beginning of obstetrics in America. She was a young nation, poor, and at war. In addition, a long-standing prejudice against men in obstetrics prevented their appearance "until the latter half of the eighteenth century."⁽¹⁾ As a result, the first original articles on this subject did not appear until the last quarter of this century.

These handicaps likewise delayed the beginning of obstetrics in North Carolina. Only six villages had been settled in the state by 1766. Naturally there were few physicians and no literature until that time. Education was controlled by the church and the earliest medical knowledge was obtained

mostly through personal libraries⁽²⁾.

According to Heaton, only three physicians in America were advertised as "man midwives" from 1766 to 1755⁽³⁾. Yet in 1733 John Moultrie settled in Charleston and practiced in the Carolinas for 50 years. A popular physician, he was "the first to break through the prejudice against men attending women in labor." He was so successful that, according to Thatcher, "his death was regarded as a public calamity," and several of the ladies of Charleston "bedewed his grave with tears and went into mourning."⁽¹⁾ Likewise, in 1772, Dr. Jacob Bonn gave instructions in midwifery to the nurses in Salem's Moravian Community⁽⁴⁾. Compare this date with Shippen's first lecture on Midwifery in America, in 1761⁽¹⁾. In 1778 an Edenton newspaper carried what is believed to be the first announcement of a "specialist" in obstetrics in North Carolina. It read in part: "The subscriber . . . one of the first surgeons of the King of France's Armies . . . gives the public notice of setting up in this town . . . and further gives notice that I possess the art of Man Midwife."⁽⁵⁾

Just before the close of the century, North Carolina founded one of the first state medical societies in the United States. It existed from 1799 to 1804, and was revived in 1849. A review of its records⁽⁶⁾ revealed nothing of obstetric significance except that its second president, Dr. John Osborne, moved to New York in 1807 and became professor of obstetrics at Columbia⁽⁷⁾.

The Nineteenth Century: Birth and Infancy

Scientific obstetrics in North Carolina did not begin until after the middle of the nineteenth century. By this time an appreciable number of physicians with obstetric training were beginning to locate in the state. Another great influence was the revival of the North Carolina State Medical Society and its publications.

At the first meeting of the State Medical Society in 1849, the charter members unanimously adopted the code of ethics of the American Medical Association, excepting

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that portion which said "in obstetrical cases . . . it is just that the fees accruing therefrom should be awarded to the physician who officiates."⁽⁸⁾ Nothing else of obstetric interest is found in the Transactions of the Society during the next five years⁽⁹⁾.

In 1853 a resolution to establish a committee on the "branch" of obstetrics was passed. The chairman of the committee for each succeeding year was supposed to make a written report, including any contributions on obstetrics throughout the state. This committee consisted of the following physicians: Chairman William George Thomas, W. H. McKee, Daniel Dupre, W. G. Hill, and F. L. Holmes⁽¹⁰⁾. However, no reports are found in the Transactions at this time. Dr. Thomas resigned as chairman in 1855 and was succeeded by Dr. W. H. McKee. This committee apparently remained dormant until 1879, when a "section of obstetrics and gynecology" was formed by the State Society.

The *North Carolina Medical Journal* first appeared in 1858. It immediately influenced the early growth of obstetrics in the state, especially obstetric literature.

The first record of a legal expert witness in obstetrics and gynecology in the state is dated 1872⁽¹¹⁾. Dr. E. Burke Haywood, after testifying in a rape case, was refused compensation as an expert witness by the local court. Appeal to the State Supreme Court granted a decision in his favor and with it a \$10 fee. Oddly enough the defendant's name was George Dollar.

Pioneers of obstetrics

The vast number of pioneers in early scientific obstetrics in North Carolina, and their contributions, are beyond the scope of this presentation; however, some of the foremost and earliest of these "obstetric greats" will be mentioned.

In my opinion, the father of early obstetrics in North Carolina was Dr. R. L. Payne. He was instrumental in organizing the first Board of Medical Examiners in 1872,⁽¹²⁾ and the following year became the first examiner in obstetrics and diseases of women,⁽¹³⁾ placing this branch of medicine on a level with medicine and surgery. As president of the State Medical Society in 1878, he fostered the formation of the first section on obstetrics and gynecology. For his valedictory address President Payne chose as his subject,

"Influences Which Affect The Child Before Birth." It was amazingly accurate for that period, and exhibited his quality as a silver-tongued orator. It stressed the blight of syphilis, epilepsy and psychosis on the fetus. Dr. Payne was probably the leading contributor to obstetric literature in North Carolina of his century.

Though noted primarily for surgery, Dr. Edward Strudwick was another early pioneer in obstetrics⁽¹⁴⁾. Born in Orange County, North Carolina, in 1802, he graduated from the University of Pennsylvania in 1824. He practiced immediate repair of the perineum, using silver wire. In 1841 he removed a 36 pound ovarian tumor. He was a charter member and the second president of the North Carolina Medical Society⁽¹⁵⁾. He anticipated "modern methods with his habit of never employing applications to the interior of the uterus, but of advocating and using intrauterine injections of salt solution."⁽¹⁶⁾ He died ironically at the age of 77 from inadvertently taking an overdose of atropine⁽¹⁷⁾.

Dr. William H. McKee was chairman of the state's first committee on the "branch" of obstetrics in 1853. He wrote the first two articles on obstetrics in the state's medical literature, and contributed greatly to the growth of obstetrics as a science.

Dr. Edward Warren of Edenton served only part of his career in North Carolina, but contributed much to obstetrics. He was the first editor of the *North Carolina Medical Journal*. In one of his first editorials, he criticized an article on "Silver Sutures in Surgery" by a young surgeon of that time, Dr. J. Marion Sims, and commented on Sim's egotism, "a trait from which Warren was not entirely free"⁽¹⁸⁾.

William George Thomas (1810-1890) was a distinguished surgeon of Tarboro and Wilmington. It is said that he antedated Sims in operating for vesico-vaginal fistula, used wire sutures and the duck-bill speculum⁽¹⁴⁾.

Johnston Blakely Jones was born in Chatham County in 1814. He practiced in Chapel Hill from 1841 to 1866, then located in Charlotte. He was active in obstetrics and "much of his practice was gynecology"⁽¹⁹⁾.

John Wesley Jones was born in 1831 in Tarboro. Graduating from the University of Pennsylvania in 1857, he studied in Europe and then practiced in Tarboro. He did general practice, but was interested in obstetrics and diseases of women⁽¹⁹⁾.

Benjamin Franklin Cobb was born in Wayne County in 1826 and graduated from Jefferson Medical College in 1847. He practiced in Wilmington and gave most of his attention to obstetrics and gynecology⁽¹³⁾.

Duncan Nathaniel Patterson was born in Moore County in 1827, and was graduated from Jefferson in 1854. His specialty was obstetrics and gynecology. He was twice president of the North Carolina Medical Society, in 1870 and 1874⁽¹⁹⁾.

Joseph H. Baker, born in Edgecombe County in 1831, graduated from Pennsylvania in 1854. He settled in Tarboro, where he did general practice with emphasis on surgery and obstetrics⁽¹⁹⁾.

Henry Otis Hyatt was born in Kinston, in 1848. He graduated from Pennsylvania in 1868 and settled in Kinston in 1872. Much of his practice was devoted to obstetrics. He was the chairman of the first section on obstetrics and gynecology of the State Medical Society in 1878, and contributed many articles to leading journals⁽¹⁹⁾.

W. I. Royster, father of Dr. Hubert Royster and a member of one of the most prominent medical families of the state, is described in his son's writings as showing a great interest in obstetrics. In his "Medical Manners and Morals," Dr. Royster presents nine of his father's case reports on obstetric patients treated from 1868 to 1875⁽¹⁶⁾.

Henry T. Bahnson was born in Salem in 1845. He graduated from Pennsylvania in 1867, studied extensively in Europe, and practiced in Salem, making significant contributions to obstetrics and gynecology⁽¹⁹⁾. His many writings include successful surgery for ectopic pregnancy, and several case reports. One noteworthy article appeared in the state's Transactions of 1872. Following several interesting case reports, he pled for better training in obstetrics and gynecology, then concluded with a plea for admission of the first woman applicant to the State Medical Society⁽²⁰⁾.

Henry S. Lott was born in Salem in 1861 and was graduated from Augusta Medical College. He became an outstanding example of a good gynecologist and obstetrician while practicing in Salem⁽¹⁴⁾.

Obstetric surgery

Due homage cannot be paid to all the North Carolina physicians who contributed to obstetric surgery during the nineteenth century. I will attempt to mention only those

"firsts" of important surgical procedures in obstetrics and to compare them briefly with those elsewhere in the country at that time.

Before considering obstetric surgery, let us consider some of the earliest reports of obstetric anesthesia. The first anesthetic given in America to a patient in labor is credited to Dr. N. C. Keep, in Boston, in 1847⁽¹¹⁾. I was unable to discover who gave the first such anesthetic in North Carolina; however, Dr. R. C. Hewett might well deserve this distinction. In 1860 his report on several years' experience with "Chloroform in Midwifery" appeared in the *North Carolina Medical Journal*. Many interesting and accurate observations were mentioned⁽²¹⁾.

The first reported section in North Carolina was performed in 1852 by Dr. W. R. Mallett, near Fayetteville, in the old "Cape Fear Section"⁽²²⁾. According to Dr. Mallett's case report, he was assisted by Dr. H. A. McSwaim. The patient was a primipara who was first seen by Dr. Mallett after four days of labor. He found the cervix fully dilated and the membranes intact. He ruptured the membranes, the cord prolapsed, and the fetus presented in transverse, with the left shoulder and arm down. Following numerous attempts to effect delivery, Dr. Mallett presented the patient the alternate of death or cesarean section. Though some historians claim that chloroform was used for this section, Dr. McNider, in his obituary of Dr. Mallett,⁽²³⁾ claims that it was used only preoperatively, since, because of religious beliefs, the patient refused its use during the operation. Dr. Mallett also reported that "she was perfectly conscious, and as soon as the fetus was removed she asked if it was alive." He stated that the edges of the wound were "brought together by 4 or 5 needles. Adhesive straps were applied and the abdomen well supported by a broad roller and compress . . . the only dressing used was cold water, which was used continuously for the first four days." Two needles were removed on the sixth day and the remainder on the fifteenth day. She sat up on the eighteenth day, remained free of infection, and gave birth to several children later.

According to Harris's chronological tabulation of cesarean sections in the United States, Dr. Mallett's section was the twenty-eighth. In a critical summary Harris stated that "the pelvis is reported as fully 3 inches in the conjugate and transverse diameters,

The propriety of the operation is very questionable."⁽²⁴⁾

The second cesarean section in North Carolina was done nine years later, in 1861, and according to Harris was no. 46 in America. It was performed in Williamsboro, by Drs. J. R. Hicks and William L. Henderson after four days' labor with an impacted fetus. The mother lived⁽²⁴⁾. Prior to this section one was performed in 1858, but was done *post mortem*. The baby lived⁽²⁵⁾.

The first operation for ectopic pregnancy in the Carolinas was performed in 1803, by Dr. David Ramsey in Charleston, S. C.⁽¹⁾. The first evidence of this operation in North Carolina that I found is a case reported in 1837 by Dr. R. F. Lewis in Lumberton⁽²⁶⁾. It involved an extrauterine pregnancy presumed to have existed for 16 years.

As mentioned previously, Dr. Edward Strudwick was one of the early pioneers in obstetric surgery. While his removal of an ovarian tumor in 1841⁽¹⁴⁾ was 37 years after Ephriam McDowell's first ovariectomy in history, it was performed only five years after the first ovariectomy in England, and three years before one was done in France⁽²⁷⁾.

At the turn of the century, Henry S. Lott, of Salem, mentioned earlier as an obstetric pioneer, devised a metal dilator to produce *accouchement forcé*, of which he wrote, "to me belongs the credit of being the first to invent and make use of such a device in America, as I had employed it successfully nearly ten years before Bossi's invention was heard of in this country."⁽²⁸⁾

Obstetric literature

The earliest obstetric literature in the state was contributed by Cherokee Indian doctors in the form of medical handbooks for Indian families, which included chapters devoted to obstetrics. The first of these—entitled "A Domestic Medical Work: The Family Physician"—appeared in 1845. It was written by Alfred M. Folger of Stokes County, a United States government physician in the Cherokee Hospital. It contains a long chapter on "Diseases of Women," including sections devoted to prenatal care, abortion, "child-bed" (labor), and "diseases of child-bed."⁽²⁹⁾

In 1849, an amazing book was published in Asheville. It was presented by Richard Foreman, a Cherokee doctor, as an "Indian Guide to Health," a remarkably thorough and

accurate handbook of Indian medicine. Included were chapters entitled: "Diseases of the Pregnant State," "Labour," "Unusual Presentations," "Twins," and "Diseases Consequent on Delivery."⁽³⁰⁾

Another unusual publication on medicine, including obstetrics, appeared in 1851. It was written by Dr. J. T. Schorwald of Wilmington, apparently an Hungarian immigrant who was not a member of the State Medical Society. Bound in blue velvet with a gold latch, his book was entitled "The Child: A Treatise on the Diagnosis and Treatment of the Diseases of Children According to the Laws of Nature." A great deal of this "Treatise" was devoted to pregnancy, with lengthy advice to midwives⁽³¹⁾.

Shortly after these publications appeared, scientific obstetric literature had its birth in North Carolina. This development was made possible by the North Carolina Medical Society Transactions, the first and only official publication of the State Medical Society until 1940⁽³²⁾. The review of all the Transactions prior to the appearance of the *North Carolina Medical Journal*, revealed three obstetric contributions.

The first appeared in the Transactions of 1855. It was written by Dr. William H. McKee, and consisted of 3 cases of apparent eclampsia: 1 intrapartum, 1 intrapartum with hemorrhage, and 1 with apparent inertia. All 3 patients were treated with the usual methods of bleeding, cupping and cold compresses, to no avail. Finally spirits of turpentine enemas were used, resulting in dead babies but enabling the mothers to survive. Dr. McKee stated that these cases were reported "to show the influence which spirits of turpentine exerts in arresting puerperal convulsions, as well as its power in producing labor." He concluded by saying, "... the physiological action I will leave for others to judge for themselves."⁽³³⁾

Dr. McKee also contributed the second article which appeared in the Transactions for 1857. Entitled "Stomatitis Materna," it presented 2 cases "peculiar to women during the latter stage of gestation and after childbirth, a form of ulcerative infection of the mouth and tongue . . . migratory . . . extending to the stomach and bowels, rectum, vagina, womb, and then back again to the mouth, antrum and finally to the lungs."⁽³⁴⁾

Appearing in the same issue was the third and last article on obstetrics before the ap-

pearance of the *North Carolina Medical Journal*. Written by Dr. N. J. Pittman, it was entitled "Rupture of the Perineum and Rectum," and described a partially successful repair of a third degree laceration⁽³⁵⁾.

The first series of the *North Carolina Medical Journal* was begun in August, 1858, and was discontinued in 1860 because of the Civil War. The second series began publication in 1878. These journals were not sponsored by the State Medical Society, but were published privately. The name was later changed to *Southern Medicine and Surgery*⁽³²⁾. They assumed publication of the great majority of publications from the Transactions. A review of these early journals (1858-1860 and 1878 to 1900) for significant obstetric literature revealed the following information:

Obstetric literature made its debut in the first issue of the *Journal* with a dramatic case report by Dr. Benjamin F. Fusenden of Plymouth, entitled "A Case of Puerperal Apoplectic Convulsions."⁽³⁶⁾ It was a fantastic and almost unbelievable account of a baby born six to eight hours after the mother died of eclampsia.

In the second article on obstetrics to appear in the *Journal*, a prominent physician at that time, Dr. W. C. Landeford of Franklin County, viciously attacked women's fashions and vanities as just cause of their many ills. After a critical analysis of their undergarments he concluded that "there is no other article of dress which should receive more patronage from the ladies than the hoop."⁽³⁷⁾

The first article in the second series of the *Journal*, appearing in 1878, was a formidable presentation by Dr. Joseph Graham of Charlotte on "Laceration of the Cervix Uteri." It was read the previous year before the twenty-fourth annual meeting of the State Medical Society at Salem⁽³⁸⁾. The next contribution to this series also appeared in 1878. It was written by Dr. A. H. Goelet on "A Case of Hour-Glass Contraction of the Uterus Before the Expulsion of the Fetus," and described the successful dilation of an apparent Bandl's contraction ring and claimed it as the first case on record⁽³⁹⁾.

Along with sections devoted to "Physiology," "Practice" (Internal Medicine) and "Surgery," these early volumes of the *Journal* devoted a section to "Midwifery." This proved to be the main source and outlet of

obstetric literature, including not only contributions from many of the state's obstetricians and gynecologists, but also many reports from the leading clinics and physicians throughout the world. It contributed much towards the rapid growth of scientific obstetric literature.

Since it was 1850 before the nation produced an appreciable amount of obstetric literature, the foregoing indicates that North Carolina kept pace with her country in this respect.

The Twentieth Century: Growth and Maturity

In the twentieth century obstetrics achieved maturity in North Carolina through two main channels. One was the great inheritance from the centuries previously discussed; the other, the innumerable contributions made during this century. Only the more significant can be mentioned.

Medical education

Probably the leading factor of growth during this period has been the rise of the state's medical schools. The modern era of medical education began with the reopening of the University of North Carolina's two-year School of Medicine in 1890 and the establishment of the Davidson School of Medicine of 1887. The latter granted no degrees until it became the North Carolina Medical College in 1893⁽¹⁵⁾. These were followed by the Wake Forest two-year School of Medicine in 1902 and the Duke University four-year School of Medicine in 1930.

New techniques

Dr. Henry L. Smith, professor of physics at Davidson College, was among the first to use the roentgen tube and in 1896 took one of the first clinical roentgenograms in the nation⁽⁴⁰⁾. I have been unable to uncover any evidence, however, that Dr. Smith or any other North Carolinian was the first to use x-rays in obstetrics. Apparently Dr. Edward P. Davis of Jefferson Medical College deserves this distinction⁽⁴¹⁾.

North Carolina claims credit for the earliest successful use of plasma and blood transfusions in modern obstetrics. Blundell's transfusions for postpartum hemorrhage as early as 1818⁽⁴²⁾, and Goodall's placental blood banks in 1938⁽⁴³⁾, though fraught with

failure⁽⁴¹⁾, are of historical significance. The first man to use blood plasma as a safe substitute for whole blood, however, was John Elliott of Rowan Memorial Hospital in 1936⁽⁴⁵⁾. "He deserves absolute and undisputed priority in making blood plasma available on a nation-wide basis and in carrying out research to that end⁽⁴⁶⁾." On the basis of Elliott's work, North Carolina is credited with having the first state plasma center. In October, 1939, Dr. William Long of Mocksville gave what is believed to be the first successful transfusion of plasma to an obstetric patient in North Carolina, as well as one of the earliest in the country⁽⁴⁷⁾. Finding a patient in profound shock from a central previa, Dr. Long did a podalic version and gave pituitrin. She became moribund. He then gave 600 cc. of plasma from the hospital ice box. She responded immediately and lived. One of the first successful blood banks in the country was opened September 7, 1939, at the Piedmont Memorial Hospital in Greensboro⁽⁴⁸⁾. More than 100 transfusions were given the first year, many in obstetric cases.

Organizations

The American Board of Obstetrics and Gynecology had its origin in North Carolina. Its organization was introduced at Asheville in September, 1927, by a resolution from Dr. Walter Dannreuther at the meeting of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons⁽⁴⁹⁾.

I believe that the father of modern obstetrics in North Carolina is Dr. Ivan M. Procter. In 1919 he became the first physician in the state, and possibly in the south, to announce a practice restricted exclusively to obstetrics and gynecology. In 1930 he became the first physician in the state to become a member of the American Board of Obstetrics and Gynecology. Dr. Procter initiated the first meeting to attempt the formation of a Maternal Mortality Committee in North Carolina. He was a strong influence in organizing the North Carolina Society of Obstetrics and Gynecology, and served as its first president. He has also contributed greatly to obstetric teaching and literature.

According to Ross, a small group was first called together in 1930, to consider preliminary steps in organizing a North Carolina Obstetric Society. More specific plans were made in October, 1931, at the Hope Valley

Country Club prior to a football game. Among those present were Drs. Ivan Procter, George Johnson, Richard Spicer, Oren Moore, William Bradford, John Taylor, Leslie Lee, Alex White, Bayard Carter, Street Brewer, and Ed Hambleton. "The group met primarily as a social gathering."⁽⁵⁰⁾

One year later, according to Procter⁽⁵¹⁾, the first steps were taken towards forming a state Maternal Mortality Committee. A group of obstetricians met in Raleigh on October 14, 1932. Their purpose was to lower the appalling maternal mortality rate in North Carolina, which was then 7.5 per 1,000 births, with 3 out of 7 deaths due to eclampsia. Dr. J. H. Hamilton of the State Board of Health compared these figures with those of other areas. Birth certificates were declared inadequate, confusing terminology was clarified, and a questionnaire was drawn up for submission by the State Board of Health to every physician in the state who lost a mother in childbirth. Lastly, the pros and cons of organizing a State Society of Obstetrics and Gynecology were discussed. "It was the unanimous opinion of those present that such an organization should be formed to improve our individual work and to be in a better position to wage a fight to lower the maternal and mortality rates in North Carolina."⁽⁵²⁾

One month after this meeting, the first formal meeting for the organization of the North Carolina Obstetrical and Gynecological Society was held. Selected physicians, limiting their practice to obstetrics and gynecology, met on November 19, 1932, in the lecture room of the old medical building at Chapel Hill. Those present were Drs. William Bradford, L. Bayard Carter, George W. Johnson, T. Leslie Lee, Brodie C. Nalle, Oren Moore, E. C. Hamblen, R. A. Ross, R. A. White, and Ivan M. Procter. Officers elected were: president, Ivan M. Procter; vice president, George W. Johnson; secretary, R. A. Ross. The established objectives of the Society were: "(1) To lower maternal mortality and morbidity in North Carolina, especially toxemia of pregnancy; (2) To create fellowship and the dissemination of obstetric and gynecologic knowledge among physicians throughout the state; (3) To use our efforts in the control of cancer among women."⁽⁵³⁾

Another obstetric "first" for North Carolina took place in October, 1938. Dr. R. A.

Ross of Duke University, one of the state's leading pioneers in modern obstetrics, issued a letter suggesting the South Atlantic Association of Obstetrics and Gynecology. The first organizational meeting was held in Charlotte, and 70 members were elected. Dr. J. R. McCord of Atlanta, Georgia, was made president and Dr. R. A. Ross secretary-treasurer⁽⁵³⁾.

The history of modern obstetrics in North Carolina would not be complete without a tribute to that group of obstetric "giants among men" who have sacrificed and dedicated so much of themselves—the heads of the obstetrical and gynecological departments of the medical schools of North Carolina.

Midwifery

While mountains of literature have been devoted to the history of midwifery, this presentation attempts only to present those evidences of historical significance in North Carolina. This record must include a period of about 200 years, beginning in the 1770's when the first evidence is found, and ironically extending to the present. For recently it was shown that midwives have increased in at least three counties in the state⁽⁵⁴⁾.

"The Moravian Records" of Salem reveal the first authentic evidence of supervised midwifery in North Carolina that I can find. In 1772 Dr. Jacob Bonn, the Moravian Community doctor at Salem, gave instructions in midwifery to the nurses⁽⁴⁾. One of these pupils was his wife. The Records reveal that she served as a midwife for at least 14 years. Twenty-three years later (1795) Dr. Bonn's successor, Dr. Vierling, renewed instructions in midwifery. However, Dr. Vierling required a chaperone, for it is quoted: "It was thought best that in the presence of the head of the married sisters, several of the sisters should receive instructions from Dr. Vierling."⁽⁵⁵⁾ One of his pupils, "Sister Holland," served for 30 years as a "faithful and successful midwife."⁽⁵⁶⁾

Competition in midwifery was apparently keen as early as 1798, for an advertisement including certified training, and believed to be the first in North Carolina, was published in a Wilmington newspaper.

Agnes Mackinley, midwife from Glasgow, respectfully offers her services to the ladies of Wilmington and its vicinity. . . . She will likewise attend ladies in Fayetteville if sent for. . . . As the encouragement she hoped for must depend . . . on her being

properly qualified she subjoins the following certificate: "these are to certify that Mrs. Agnes Mackinley has regularly attended my course of lectures in Midwifery for one session of the College, and has undergone all the usual examinations with approbation . . . under my direction at the Lying-in-Hospital, where she had opportunities assisting at a variety of labours." signed, March 8, 1789, James Towers, AOP⁽⁵⁷⁾.

Midwifery during the nineteenth century existed on a much lower level than described above. Though fostered by necessity, it served this century as a "relic of frontier life that clung to the population with all the tenacity of superstition."⁽⁵⁸⁾ It was well described by Johnson in his "Antebellum North Carolina."⁽⁵⁹⁾ The midwife or "granny" depended entirely upon "toddies, cheerful conversation, and numerous concoctions" for aid in her deliveries. Some of the superstitions abounding among them were the use of red pepper, ginger tea, and white hazel leaves as oxytocics. The patient was instructed to blow in her hands to discharge the placenta. If the midwife failed to place an axe or knife under the bed to cut the after pains, the family would do so immediately.

The dawn of the twentieth century brought virtually no improvement. Trained or intelligent midwives were rare. They plodded along "with the knowledge handed down from generation to generation, some of it valuable but interwoven with a mass of misinformation, superstition, and unbelievable fatalism. Their deep ignorance of anything resembling modern asepsis put into their minds and faithful hands the weapons of destruction."⁽⁶⁰⁾ Virtually no progress was made against this pestilence until 1912, when the State Legislature passed a law granting any County Board of Health the power to license and control midwives. Five years passed shamefully before this law was first used by Rocky Mount in 1917. By 1920, midwifery reached a tremendous and hideous peak in North Carolina. This peak and the crusade for its destruction by the state is described later.

Obstetric Nursing

Though the nursing profession has endured for centuries, its cornerstone was not laid in North Carolina until 1894. At this time the first training school for nurses was established at Rex Hospital in Raleigh. This foundation was strengthened in 1902 with the origin of the North Carolina Nurses Association. In 1903 North Carolina became

the first state to enact the Nurses Registration Law⁽⁶¹⁾.

These early milestones fostered a rapid growth of nursing in the state. Obstetric nursing was taught and applied in the rapidly expanding teaching institutions and hospitals throughout the State. At the same time, a particular group of women was destined to contribute greatly to obstetrics in the state. Known as the Public Health Nurses of North Carolina, this group was found to be the best teaching agent known for dealing with the public, especially that part of the public consisting of midwives and pregnant women surrounded by the indigent and the ignorant. The Public Health Section of the North Carolina Nurses Association was founded in 1916. It was composed of 12 nurses⁽⁶²⁾. Some of their magnificent accomplishments and ultimate contributions to obstetric nursing are described in the section that follows.

The State Board of Health

The North Carolina State Board of Health, the twelfth in the nation, was organized in 1877, and consisted of the entire membership of the North Carolina Medical Society⁽⁶³⁾. In 1879 the Board of Health was set up independently under a six-man board headed by Dr. Thomas L. Wood as secretary. In 1881 Dr. Wood stressed the importance of vital statistics⁽⁶⁴⁾. However, 32 years elapsed before the passage of our present Vital Statistics Law, which is mentioned later.

The first *Health Bulletin* appeared in April, 1886. Its first article of obstetric significance appeared in July, 1894. Herein the Board of Health requested the 1895 legislature to pass a law requiring a report of any eye lesion at birth, to help prevent ophthalmia neonatorum⁽⁶⁵⁾. Shamefully, this plea was ignored for more than 15 years, until the use of silver nitrate became mandatory.

In 1912 the *Health Bulletin* appealed to the state—publicly, medically and legally—for an adequate vital statistics law⁽⁶⁶⁾. These efforts were finally rewarded the following year by the passage of a law requiring the registration of all births and deaths. At that time the *Bulletin* wisely stated that “in a few years the records obtained from the operation of this law will be one of the most valuable sets of records in possession of the state.”⁽⁶⁷⁾ One of its many values was obstetric, for these statistics became the first

ammunition fired in the war against midwifery and maternal mortality in the important years to come.

From 1912 to 1917 the *Health Bulletin* was concerned primarily with patent medicines, flies, the proper construction of privies, and World War I; but during this time vital statistics were being accumulated.

On January 1, 1917, Rocky Mount became the first community in the South to pass and enforce a law requiring all midwives to pass an examination before practicing⁽⁶⁸⁾. Later that year, the state finally passed a law requiring the registration of all midwives. Thus the State Board of Health was able to conduct its first survey of midwives. A total of 9,000 were found⁽⁶⁹⁾.

By 1920 midwife surveys and vital statistics presented the following: At least 4,000 midwives were conducting approximately 34,000 deliveries, of which 20 per cent were white and 80 per cent colored. At least one-third of all the deliveries in the state were managed by midwives. Pregnancy was second only to tuberculosis as the leading cause of death⁽⁶⁹⁾.

During February, 1919, the Infant Hygiene Bureau launched a campaign to educate every pregnant woman in the importance of seeking prenatal care. They asked every possible agency to aid in this program. Free health bulletins were distributed pleading their cause⁽⁷⁰⁾. By August, 1919, a well planned program was underway. Courses on the hygiene of pregnancy and care of the newborn had been prepared for use by the county health nurses for home demonstrations and group instructions⁽⁷¹⁾. This program expanded into the formation of an Infant Hygiene Unit for each county. In addition, this instruction for the mothers was given to midwives as well as to women's organizations, and a clinic was conducted by the county health officers⁽⁷²⁾.

Conferences for midwives were initiated in November, 1920. They were conducted by public health nurses using a syllabus prepared by the Bureau of Public Health Nursing and Infant Hygiene. These conferences consisted of courses on prenatal management, labor, delivery, complications, and postpartum care⁽⁶¹⁾.

In 1921 the *Health Bulletin* started publishing mortality figures. Obstetric causes of death were given under a single general heading, “The Puerperal State.” In 1922,

additional categories were entitled "Premature Birth" and "Injury at Birth." Comparative statistics with other states were also initiated.

In 1920 a staff of public health nurses was organized to supervise and train midwives in counties without organized health departments. In 1922, these efforts were doubled. Twenty districts were established, with a public health nurse assigned to each district. This much needed expansion was brought about by funds from the Children's Bureau in Washington under the Shephard-Towner law appropriations⁽⁷³⁾.

Despite these accomplishments, the midwife and mortality situations remained shameful. In 1923 Procter urged obstetricians throughout the state to increase prenatal and postpartum care, and to this end he urged them to change from a per visit charge to a flat fee⁽⁷⁴⁾. In 1923 Harden contrasted the deficient training of midwives here with the extensive courses required in other countries⁽⁷⁵⁾. In 1924 the counties voluntarily adopted a more rigid control over midwives. This county control law demanded not only the registration of all midwives, but granted permits only after proper training and examination⁽⁷⁶⁾. By August of 1925 seven counties had adopted this important law, with gratifying results⁽⁷⁷⁾. The urgent need for such measures was exposed at this time by a national survey of midwives, revealing 45,000 in the country; 30,000 of which were in the south. North Carolina led the entire nation with 6,500⁽⁷⁸⁾.

Several facts can be cited in defense of North Carolina's shameful position at this time. She had one of the leading birth rates; her per capita income was one of the lowest; and her population was greatly rural, and thus largely uneducated and indifferent. This factor of public indifference was attacked by Brewer in 1928⁽⁷⁹⁾. He emphasized that the public was educating and punishing the indigent, but was sadly neglecting them medically. In 1929 a three-year survey of midwives in the state revealed that the situation was as bad as ever and concluded that "the only practical plan is regulation of midwife practice and the improvement of their individual status."⁽⁸⁰⁾ In 1933 an editorial in the *Health Bulletin* reported no improvement and urged the widespread establishment of prenatal centers everywhere in order to reach all pregnant women⁽⁸¹⁾.

The validity of this constant plea for prenatal centers was well substantiated in 1935 by Dr. William Bradford's report of the Charlotte Maternity Clinic from 1932 to 1934⁽⁸²⁾. Their maternal mortality rate revealed the utmost importance of adequate prenatal care. Reporting further in 1937, Bradford stressed the importance of lay education and told how it could be coordinated with the medical profession through the help of civic organizations⁽⁸³⁾. Their efforts were rewarded by a maternal mortality rate one-third that of the state. Likewise, the fine work of Raleigh's prenatal clinics at Rex and St. Agnes Hospitals was reported in 1937 by Caviness⁽⁸⁴⁾. These clinics were established in 1929 by Dr. A. S. Oliver, ably assisted by Dr. Robert Ruark. They also supervised the Junior League Clinic, likewise established in 1929. Some of their rewarding results were: (1) no mother died; (2) adequate care became available to every pregnant woman in Raleigh; (3) by 1936 no white woman was delivered by a midwife; and (4) only one patient developed eclampsia.

In 1936 the State Board of Health launched an extensive campaign to advance the need of education to expectant mothers by the laity⁽⁸⁵⁾. This challenge was well met by the women of Moore County and Rocky Mount⁽⁸⁶⁾, whose accomplishments stimulated women in other sections of the state.

In 1932 the State Board of Health was crippled by a lack of funds and a national depression. In 1936, however, the Social Security Law was enacted by Congress, producing a great expansion of the Public Health Section of the North Carolina Nurses Association to about 200 members⁽⁷³⁾. With these resources, more and more county health departments were organized. As a result, county health officers and nurses were able to bring broader and better supervision of midwives through individual and group conferences including demonstrations⁽⁸⁷⁾. The value of this expansion became very apparent by 1937. North Carolina's maternal mortality rate reached an all time low with 5.4 deaths per 1,000 deliveries. She also reached her lowest state rating of thirty-fourth in the nation. Yet, strangely enough, her rating has been fortieth or higher since 1940.

In 1939 the first state conference in the nation on "Better Care for Mothers and Babies" was held in Raleigh. Sponsored by the National Council for Mothers and Babies

in cooperation with the State Board of Health, this conference attacked the high maternal and infant mortality rates in North Carolina. Dr. Fred Adair gave first priority to the education of the public by the public. Dr. Bayard Carter likewise issued this challenge, especially to the women of North Carolina⁽⁸⁸⁾.

In spite of World War II and all its handicaps, the maternal mortality rate in 1946 was down to 2.0 per 1,000 deliveries. This was due in part to a lowered birth rate during the war, but two other factors were significant. One was the replacement of the doctor shortage in several counties by public health nurses that were certified midwives. The other factor lowering the maternal mortality rate during the war was the "Emergency Maternal and Infant Care Program" that afforded care to the wives and babies of service men in the lower pay grades⁽⁸⁹⁾.

Since World War II, the work of the State Public Health Department has continued relentlessly to combat midwifery as well as maternal and infant mortality. This progress is well illustrated by the 1955 report of the Department stating the following accomplishments: A full-time obstetric consultant was added to the staff, several new Maternal and Infant Clinics were opened, a three-day postgraduate refresher course was conducted for physicians, care was rendered to more than 31,000 women and 51,000 babies, studies were inaugurated to investigate all miscarriages, stillbirths and neonatal deaths, a two-week refresher course was given to midwives, and a three-day course was given to public health nurses on the midwife program⁽⁹⁰⁾.

The Maternal Mortality Committee

By 1945 North Carolina was among eight states with the highest maternal mortality rate. Many states had already achieved great success in lowering their maternal deaths by setting up a Maternal Mortality Committee⁽⁹¹⁾. These factors apparently led to the successful organization of the North Carolina Maternal Mortality Committee in December, 1945. This committee, serving under the North Carolina Medical Society, was composed of Drs. Frank R. Lock, chairman; J. S. Brewer, G. M. Cooper, Ernest W. Franklin, Thomas L. Lee, Ivan Procter, R. A. Ross, and R. A. White. The object was to establish a program to reduce the num-

ber of deaths associated with pregnancy in North Carolina⁽²²⁾.

The organizational meeting was held on February 14, 1946. As a result, two recommendations were made to the State Medical Society at its annual meeting in May, 1946. One was to publish a series of articles in the *North Carolina Medical Journal* pertaining to this program. The other was to conduct a thorough study of every maternal death in North Carolina. These recommendations were approved, and the study of maternal deaths was begun on August 1, 1946⁽⁹²⁾. Dr. Lock remained chairman of this committee until 1952, when he was succeeded by Dr. James F. Donnelly. This committee has performed an enormous service by surveying more than 1700 maternal deaths. In addition, it has submitted numerous publications containing a vast amount of information of benefit to modern obstetrics.

Ten years of work by this committee might best be summarized by a quotation from the minutes of its most recent meeting. "The most striking features of the survey of 1,700 or more maternal deaths so far studied by this committee is the fact that 80 per cent of the patients received totally inadequate prenatal care; more than half of these received none."⁽⁹⁴⁾

The Present

The situation in obstetrics today is the result of a crusade against this century's most shameful aspects of obstetrics—midwifery and maternal mortality. Proudly we hail the fact that during the past 20 years there has been a twentyfold reduction in maternal mortality, a threefold reduction in infant mortality, a threefold reduction in the number of midwife deliveries, and an eightfold reduction in the number of midwives. Yet the fact remains that today there are still at least 500 known midwives in North Carolina performing about 11,000 deliveries annually. Furthermore, the maternal and infant mortality in North Carolina is still among the highest in the nation. The lack of prenatal care among the indigent is apparent. While the facilities for proper obstetric care now seem adequate, statistics indicate that the public is either ignorant or negligent in using these facilities.

The greatest general in the war against midwifery and maternal mortality by the state was Dr. George M. Cooper, who spoke

so wisely of the present when he said: "If anywhere in this state . . . there is a pregnant woman who does not have the service of a private physician . . . and does not come to a clinic . . . free of charge, it is her own fault." And as Dr. J. Whitridge Williams once said: "When the women of America recognize the value of and the need for maternity care, they will demand it. Then and only then, will they get it."

Summary and Conclusion

The eighteenth century brought the conception and development, *in utero*, of obstetrics to both America and North Carolina. Naturally, America led her states obstetrically. But history reveals that North Carolina remained close on the heels of the nation during the earliest phase of obstetrics.

The nineteenth century produced the birth and early growth of scientific obstetrics. The first half of this century was extremely difficult for North Carolina. Her medical development was hampered by many factors—geographical, economic, and social. As a result, obstetrics remained dormant and midwifery dominant. The last half of the century, however, brought considerable improvement. Thus obstetrics advanced more rapidly in the state, and she increased her pace with the nation. Fortunately North Carolina was blessed with several obstetric pioneers during the century. Working with the tools offered by the State Medical Society and its publications, these pioneers were able to produce an early and rapid participation in obstetric literature and surgery. The practice of obstetrics became scientific and grew rapidly.

The twentieth century brought obstetric growth to maturity. In doing so it met concurrently with both success and failure, each due to many factors.

The most significant factors for success were as follows: The pride in and stimulation of several obstetric "firsts" in the nation, such as modern blood transfusions and the earliest formation of obstetric organizations; the rapid development of medical schools with excellent obstetric departments; high obstetric standards and better obstetricians; the countless contributions of an 80-year-old State Board of Health in spite of many handicaps; a 54 year old State Nursing Association, early to organize and serve, with its remarkable public health nurses;

and finally, a State Maternal Mortality Committee contributing 10 years of valuable service.

The most notable factors believed by the author to be responsible for the failure of some aspects of modern obstetrics were as follows: a largely rural population; poverty and ignorance among a high percentage of pregnant women; delay by the State Legislature in passing certain laws, such as the use of silver nitrate for newborn's eyes, vital statistics, and the control of midwives; the lack of state funds superimposed by a national depression and two World Wars; a state with one of the highest birth rates in the nation; a shameful number of maternal and infant deaths, due in part to poor obstetric training or judgment, but in most cases to a lack of proper prenatal care; a stubbornly persistent high number of midwives with at least 500 known to exist today; and, lastly, an apparent neglect by the entire state in the education of the importance of proper care for every pregnant woman, especially the indigent. Many of these factors, though proven by history to be detrimental to obstetrics in North Carolina, still exist.

Conclusion

A history of obstetrics in North Carolina reveals three centuries challenged by many obstacles. These centuries were marked, however, by perpetual growth resulting in a great heritage. The past challenges the present, likewise confronted by many obstacles, to protect its heritage for the future of obstetrics.

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Nausea and Vomiting of Pregnancy

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STATESVILLE

Antihistamines have been found to suppress nausea and vomiting in a wide range of disorders. Since 1949, when Gay and Carliner⁽¹⁾ first observed the suppression of motion sickness by an antihistamine, many such compounds have been tested for anti-nausea properties. Several have proved effective in preventing motion sickness⁽²⁾, and the symptoms of vertigo, nausea, and vomiting associated with radiation sickness⁽³⁾, Menière's syndrome⁽⁴⁾, cerebral arteriosclerosis⁽⁵⁾, fenestration⁽⁶⁾, electroshock therapy⁽⁷⁾, and streptomycin therapy⁽⁸⁾. Antihistamines are reported to control postoperative nausea and vomiting⁽⁹⁾.

Nausea and vomiting of pregnancy can be controlled by the same drugs⁽¹⁰⁾. Meclizine (Bonamine), has an action similar to that of other antihistamines, but its therapeutic effect is more prolonged. It was suggested that nausea and vomiting of early pregnancy

might be conveniently controlled by one or two daily administrations of meclizine, and that even hyperemesis gravidarum might be controlled by this drug. Preliminary reports⁽¹¹⁾ have indicated its value.

Materials and Methods

Meclizine hydrochloride has been used as the sole treatment of nausea and vomiting of pregnancy in 105 women ranging in age from 15 to 39, the median age being 25. Symptoms occurred between the fourth and seventeenth week after the last menstrual period, with the median time of onset in the ninth week. Meclizine therapy was begun promptly after the first report of symptoms. Meclizine, given in a single dose of 50 mg. daily before retiring, was adequate to control symptoms in most patients. About a third of patients required larger doses; these were instructed to take an additional 25 to 50 mg. on arising.

In conjunction with other measures, meclizine controlled symptoms in 3 women in whom clinical findings warranted the diag-

*The Bonamine (brand of meclizine) hydrochloride used in this study was kindly supplied by the Medical Department, Pfizer Laboratories, Brooklyn, New York.

nosis of hyperemesis gravidarum. These cases will be discussed in some detail.

Blood and urine examinations were performed routinely on each patient during the trial of meclizine. Patients were questioned frequently about the continued effectiveness of therapy and the occurrence of undesirable symptoms.

Results

Relief of symptoms

Of the 105 patients, 35 suffered nausea unaccompanied by vomiting. In this group meclizine was most successful. Complete relief was experienced by 33 and partial relief by 2; no failures were encountered.

Among those who suffered both nausea and vomiting therapy was somewhat less successful. In this group of 70 patients symptoms were completely controlled by meclizine in 62, partly suppressed in 5, and remained unaffected in 3.

Thus a total of 97 per cent of the 105 women responded to therapy. Relief was prompt, often beginning within an hour, and the full effect of the drug was always evident within 24 to 48 hours. The duration of therapy was determined empirically for each patient by temporarily discontinuing meclizine and observing whether symptoms returned.

Experience with this group showed that when patients remained free of symptoms for longer than three or four days, no recurrence was likely. In no case did meclizine fail to maintain its initial effect throughout the period of therapy, which exceeded 12 weeks in several instances, although the average duration of treatment was four weeks.

Side effects

Side-effects of meclizine therapy were noted in 12 patients, but in no case were they severe enough to warrant concern.

Slight drowsiness was experienced by 10, and was accompanied by vertigo on arising in one other patient. Another reported tinnitus. Usually these effects were diminished or eliminated by dividing the daily dosage so that the bulk of the amount was taken at bedtime.

Blood and urine examinations before and during meclizine therapy revealed no significant change except for occasional transient episodes of glycosuria which were detected in 5 women. An interesting observation was that 3 of these patients had continued to have

nausea and vomiting in spite of the treatment. If this observation is confirmed, it may be possible to predict with some accuracy those patients who will not respond to therapy.

Hyperemesis Gravidarum

In 3 women in this study, the gravity of the symptoms led to a diagnosis of hyperemesis gravidarum.

One patient, partly relieved of nausea and vomiting by 50 mg. of meclizine given daily, was found after two weeks to have intensified symptoms, with mild hypertension and acetonuria. Sedation and intravenous glucose brought relief. She was maintained free of symptoms by increasing the dosage of meclizine to 75 mg. daily.

A second patient suffering from hyperemesis gravidarum was relieved by 50 mg. of meclizine daily to the extent that she could retain food.

The third case of hyperemesis gravidarum was in a patient whose symptoms were controlled completely for three months. During the fourth month of therapy the drug was taken irregularly; severe vomiting and diarrhea with acetonuria developed. The symptoms were relieved by intravenous fluids, and the drug was withdrawn.

Summary and Conclusions

The mechanism by which antihistamines suppress the nausea and vomiting of pregnancy is not well understood. Such activity is apparently restricted to those antihistaminic compounds which exert an anti-cholinergic action in the central nervous system. Borison and Wang⁽¹²⁾, reviewing the pharmacology of vomiting, conclude that anti-emetic compounds act by specifically blocking the vomiting reflex, and these investigators tentatively locate the site of action in the brain stem; but evidence is insufficient to demonstrate incontrovertibly that the site of action is either the emetic center or the chemoreceptive trigger zone.

Of the compounds now known to be effective against nausea drugs, meclizine is the most convenient to use clinically because of its prolonged action. In this study, nausea and vomiting of pregnancy was relieved by a single daily dose of 50 mg. of meclizine which controlled symptoms satisfactorily in the majority of cases. The daily dose was occasionally divided as a means of preventing

drowsiness in the few patients who reported it.

This study of 105 women with nausea and vomiting of early pregnancy and hyperemesis gravidarum has confirmed the effectiveness of meclizine (Bonamine) hydrochloride. The drug provided complete control of simple nausea and vomiting in 90.4 per cent of the cases, and significant improvement in an additional 6.67 per cent; thus satisfactory control was provided in 97 per cent.

Although drowsiness occasionally occurred, it was easily controlled by adjusting the dosage of meclizine; no significant side-effects were observed, although moderately high doses were maintained for many weeks.

Meclizine provided adequate control in 2 of 3 cases of hyperemesis gravidarum.

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Psychosomatic Dermatology

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The pattern of disease is always modified by emotional factors, whether the disturbance is purely functional or organic. Nevertheless few clinicians are unaware of the role played by emotional disturbances in the precipitation and aggravation of somatic diseases. The physiologic mechanisms involved have been little explored. All the evidence so far available, however, indicates that the autonomic nervous system is the main link in transforming emotional stimuli into somatic responses. This is borne out by the fact that the influence of emotional stress is particularly marked in diseases which mainly affect functions under autonomic control. Corroborative evidence is also provided by the striking benefit which often

results from treatment with drugs acting on the autonomic nervous system.

General Psychosomatic Disorders

Autonomic dystonia

In pathologic conditions the autonomic nervous system fails to make rapid and adequate adjustment to changes in the environment and to the varying needs of the body. This failure may be due, in part, to hypersensitivity of the effector organs to the autonomic transmitter substances (acetylcholine, adrenaline and noradrenaline). In general, however, the higher centers are also hyperactive, so that both the sympathetic and parasympathetic divisions of the autonomic nervous system are overstimulated.

Anxiety neurosis

The term "anxiety neurosis" is applied to a symptom complex characterized by gen-

eral irritability, apprehension, a feeling of tension, and a variety of somatic symptoms indicative of autonomic imbalance—for example, palpitation, precordial pain, dyspnea, vertigo, sweating, headache, and fatigue. The appetite is often impaired and the patient sleeps badly. Clinical examination reveals coldness of the extremities, dryness of the mouth and lips, an irregular pulse rate, labile blood pressure, and exaggerated reflexes. Patients can, as a rule, be greatly helped by a frank discussion of their problems, followed by reassurance and appropriate psychotherapy.

The autonomic disturbances can be quickly brought under control by the daily administration of Bellergal. The relief of the disquieting symptoms removes many of the patient's fears and greatly accelerates recovery.

Emotional trauma

A terrifying experience or the sudden receipt of bad news produces profound shock to the entire nervous system, manifested in the form of pallor, tachycardia, nausea, vomiting, and vertigo. A condition of autonomic imbalance is set up and often persists long after the experience has past.

Autonomic imbalance plays a more or less prominent role in almost all diseases of the body and is instrumental in translating emotional disturbances into somatic symptoms, including dermatologic conditions. Apart from emotional tension, a variety of endogenous and exogenous factors, such as hormonal imbalance, injury, or changes in environment, may disturb the smooth functioning of the autonomic nervous system.

Emotional Factors in Dermatologic Conditions

Under the pressure of everyday work, the dermatologist finds it all too easy merely to scrutinize a patient's rash, make a diagnosis, and prescribe treatment, forgetting that man is a compact fusion of body, mind and spirit, and that sometimes the ills of the flesh cannot be healed unless the mind is relieved and the spirit emancipated.

The skin stands between the individual's inner and outer worlds, and the great interplay of forces is reflected in its functioning. Indeed, we may speculate that, were it not for the skin's additional functions—insulation, weather-conditioning, cushioning, and covering—it might well reveal these ex-

changes still more directly as we suspect the inner, more protected partitions (such as the stomach and sinus linings) of doing.

The specialities of dermatology and psychiatry are by no means poles apart. The dermatologist should learn to look well beneath the skin in order to assess the feelings and unconscious motives of his patient. A moment's consideration will remind us of the emotional significance of pallor, blushing, flushing, sweating, and "goose-flesh." The mother's stroking hand and the lover's caress may be so gratifying that their withdrawal may well be portrayed in the skin; and lastly that the inability to "let off steam" by aggressive action or words in many circumstances may cause some part of the skin to act as a safety valve.

Illustrative Cases

A careful and complete history is most essential in effecting an accurate diagnosis. The following 2 cases illustrate the importance of a correct diagnosis.

Case 1

The patient had repeated urticarial eruptions involving the neck, arms, trunk, thighs, and legs. The lesions occurred several times a week, and almost invariably at 7:30 P.M. The edema, urticarial whealing, and pruritus reached maximum intensity at midnight, gradually subsiding toward early morning. A careful survey was made of her eating habits, household chores, contact possibilities, wearing apparel, and emotional upsets. She promptly denied any knowledge of a precipitating factor. That the eruption nearly always appeared at the same hour was at once intriguing and challenging. A chance remark by the patient one evening gave the first clue. It happened that she had been having violent quarrels with her husband, who was a railroad engineer. His train arrived at the station at 7:30 P.M. daily. At that hour he blew the train whistle for the railroad crossing. The moment she heard the sound, hostility towards her husband was aroused and the urticarial lesions subsequently appeared.

Case 2

This patient had repeated attacks of what appeared to be urticaria. It was noted that the lesions appeared after she had quarreled with her husband. The family doctor treated her on the basis of an emotional disturbance. She was finally referred to a psychiatrist, who made a serious attempt to treat her for emotional stress, but with little success. After a number of these attacks it was finally discovered that they did not immediately follow the quarrel with her husband but occurred only after she had visited her mother in the hope of escaping additional psychic trauma. A careful investigation revealed that the bed she repeatedly slept in at her mother's was infested with bed bugs. After a thorough housecleaning the "attacks" ceased, in spite of continued family quarreling.

Dermatologic Diseases With a Psychogenic Basis

Eczema

Conditions loosely described as "eczema" comprise about one-third of dermatologic practice. They are often recurrent and occasionally chronic maladies, and tend to be refractory to treatment. Asthma-eczema-hay fever patients, usually have a tremendous drive. They are restless and overambitious, with definite feelings of insecurity and inferiority, overdependency, narcissism, latent aggressiveness, and egocentricity.

Pityriasis rosea

The causes of this disease are obscure. It is without question more common in the spring and autumn than in the other seasons. It is possible that the disorder is feebly infectious and allied to the exanthemata. Rarely have I observed this disease in the absence of an emotional disturbance. It is often seen in individuals who have experienced sudden shock, apprehension, stress or strain. It is quite noticeable how promptly the patients respond to psychosomatic therapy.

Psoriasis

This disease could be designated as a "polite social disease" in contradistinction to the venereal diseases. The etiology is still unknown, but many factors, such as infection, neuropathy, diet, and endocrine imbalance have been considered. Regardless of etiology, this disease is often exaggerated by emotional disturbances. Indeed I am certain that psychosomatic therapy is beneficial. Many patients who vacation at the seashore seem to improve markedly and promptly. I am not sure but that change of environment, release from stress and strain, change of diet, relaxation, and new social contacts are not more beneficial than the sunshine which is so highly recommended.

Pruritus

Local anal and rectal conditions such as threadworms (pinworms), *Oxyuris vermicularis*, roundworms (*Ascaris lumbricoides*)

irritant discharges, hemorrhoids, fissures, and fistulas, may cause pruritus ani. Fungus or monilial infections, perhaps associated with the use of certain antibiotics, seborrheic dermatitis, psoriasis, contact dermatitis, condylomas, and pediculosis may also cause itching in this region. General causes such as nutritional deficiencies, drug intoxications, and the abuse of condiments may act at least as aggravating factors. Examination for *Oxyuris* ova should be made.

It seems from the history that a local stimulus such as pinworms, an enema, or an operation in this region has initiated the symptoms and led to scratching, thereby setting off a vicious cycle. Although most dermatologists agree that psychologic factors are of supreme importance in the etiology of idiopathic pruritus ani, no systematic attempt has been made to submit to a psychiatric examination a random sample of patients suffering from this complaint. I am fully convinced that whatever the etiology, reassurance provided through a friendly and thoughtful approach, if not complete psychiatric guidance, is of great value to the patient.

Conclusion

Disease is not static. It is an active, ever changing process of adjustment affecting the whole mental and bodily personality, and giving rise to psychosomatic disturbances in varying proportions, with or without demonstrable structural changes.

To oversimplify, unfavorable inborn traits, racial and familial influences, modes of upbringing and the acquisition of faulty behavioral patterns, and occupational and social customs, together with many other factors, may all play a part in preventing the attainment or maintenance of health. Abnormal mental and physical states, long regarded as unrelated, must be looked upon as intimately interwoven in many patterns and in all gradations, from the indefinable "normal" to the obviously pathologic. Bodily disturbances may influence the mind, and mental disorders affect the body, to an extent varying in different circumstances and from one individual to another.

Phlegmasia Cerulea Dolens

Report of a Case

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and

W. RALPH DEATON, JR., M.D.

GREENSBORO

Phlegmasia cerulea dolens is an awe-inspiring, rapidly progressing total thrombophlebitis of an extremity, with severe arterial spasm. It is known by many synonyms, including blue phlebitis of Gregoire, pseudo-embolic phlebitis, and acute massive venous obstruction. The disease was first reported by Tremolieres and VeRan in 1929⁽¹⁾. So little attention was paid to their report that when Gregoire⁽²⁾ termed the disease phlegmasia cerulea dolens in 1938, his name became associated with it. Since that time somewhat less than 75 cases have been reported, largely one or two cases at a time. It is the purpose of this paper to report a case successfully treated by vena cava ligation and lumbar sympathectomy.

Case Report

A 55 year old multiparous woman had a hemorrhoidectomy for combined hemorrhoids. On the seventh postoperative day, at about 2 in the afternoon, she noted the onset of rather severe pain in the calf of the left leg. She complained to the nurse, who observed that the leg looked no different from the right one. However, the patient, who hitherto had been rather placid and easily satisfied, complained so bitterly of pain that the attending surgeon was notified. When he saw her at about 3 o'clock, there was slight swelling of the calf, but no other objective findings. The femoral, popliteal, and dorsal pulses were easily palpable. One hundred milligrams of Demerol were given parentally, with some relief of pain.

About 5:30 P.M. the patient again began to complain of pain and was seen by the attending surgeon at 6 P.M. At this time her leg was dusky and swollen from the groin down. The left foot was cooler than the right, and the dorsalis pedis pulse was not palpable. A diagnosis of arterial embolism was made. In the next half hour the leg became more swollen, quite cyanotic, cold, and pulseless. The patient's general condition rapidly de-

generated; the pulse went up to 144 per minute, the blood pressure dropped from 130 systolic, 80 diastolic to 80 systolic, 60 diastolic. She writhed in pain, and was covered with sweat. At this time the diagnosis of phlegmasia cerulea dolens was considered, and referral to the literature allowed confirmation of the diagnosis. It was decided to ligate the vena cava to prevent thrombus blockage of the renal veins and/or pulmonary embolism. Further, in view of the extreme pain, sympathectomy was contemplated if the patient's condition warranted it at operation.

Operative procedure

As soon as the operating room was prepared laparotomy was performed under Pentothal — nitrous oxide — oxygen anesthesia. The inferior vena cava was exposed transperitoneally, doubly ligated, and divided. The affected foot, which had been left uncovered, was cold and intensely cyanotic at this time. The second, third and fourth left lumbar sympathetic ganglia were resected. Immediately the foot became less cyanotic and somewhat warmer. By the time the wound was closed, although the leg seemed swollen to the bursting point, it had only a faint bluish cast and was warm. The patient received a transfusion of 500 cc. of whole blood during the operation.

Postoperatively the leg rapidly regained a normal color, and within a week virtually all the swelling regressed. The other leg had only a barely perceptible degree of edema. Within the week she was walking and in 12 days was discharged. Two months postoperatively she is doing all her own house work, but because of edema of the legs is required to wear elastic stockings. She has never complained of pain in the affected leg since operation, but did require a few doses of narcotics for relief of incisional pain.

Comment

This disease, once seen, can never be mistaken for any other condition. The descrip-

tion of the patient and of the affected extremity is almost exactly alike in each of the 14 articles consulted. The sudden onset of pain, cyanosis, chilling and edema, in that order, is pathonomic. Note that the first three signs are due to the arterial spasm accompanying the thrombophlebitis, while only the edema is due directly to the venous disease. Gregoire⁽²⁾ correctly ascribed the bluish color to asphyxiation resulting from an inadequate supply of oxygenated arterial blood.

Various forms of treatment have been advocated; none have been universally successful. Medicinal therapy to induce vasodilatation has been of no avail. The successful use of anti-coagulant therapy has been reported, but has frequently been followed by gangrene. The majority of successful results have followed ligation of the vena cava with or without concomitant sympathectomy, effected by either repeated blocks or surgical excision of the ganglia.

Ligation of the vena cava should not be expected to effect a cure of the venous disease distal to the ligature; it is performed only to prevent lethal complications of the disease — namely, thrombosis of the renal vein and/or pulmonary embolism. In several reported cases, however, vena cava ligation alone resulted in complete recovery or recovery with minor gangrene. On the other hand, lumbar sympathectomy, regardless of the method of inducement, should relax the arterial spasm, so that an adequate amount of oxygenated blood will reach the extremity. It is felt that, since laparotomy must be performed for ligation of the vena cava, surgical excision of the lumbar ganglia concur-

rently is a more desirable procedure than repeated blocks.

Prognosis

The prognosis with this disease is indeed grave. DeBakey and Ochsner⁽³⁾, in 1949, reported gangrene in 24 of 56 abstracted cases, with death occurring in 11. Davies and Grimes⁽⁴⁾, in 1953, reported that "in approximately 50 per cent of the reported cases the development of gangrene of the extremity necessitates amputation. About one-third of the cases have resulted in the death of the patient during the profound circulatory collapse in the first few hours after the onset of the process." In the present case it was felt that the patient was quite near complete collapse and death when the operation was begun. Her immediate postoperative improvement was indeed gratifying.

Summary

Phlegmasia cerulea dolens is a disease of unknown cause consisting of severe total thrombophlebitis and accompanying arterial spasm in the extremity. The morbidity and mortality are high. This paper reports one case, with successful treatment by ligation of the vena cava and lumbar sympathectomy.

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Dr. Robert M. Zollinger, professor and chairman of the Department of Surgery at Ohio State University, is the new chairman of the Veterans Administration Special Medical Advisory Group, VA has announced.

He was elected at the group's quarterly meeting in VA central office at Washington, D. C., to succeed Dr. Wendell G. Scott, professor of radiology at Washington University in St. Louis, who will continue as a member of the Group.

The Precipitation of Active Tuberculosis by Steroid Therapy

Report of Four Cases

JOHN M. WORKMAN, M.D.

and

JOHN R. BUMGARNER, M.D.

BLACK MOUNTAIN

Soon after the use of cortisone and ACTH became widespread, many cases were reported showing that their use might have an unfavorable influence upon infections—probably because of their anti-inflammatory action. This effect was noted in many patients with tuberculosis.

The purpose of this paper is to add 4 more cases that have come under observation, in which cortisone apparently had a deleterious effect upon tuberculous lesions.

Case Reports

Case 1

A 60 year old white automobile salesman was found by his physician in 1950 to have carcinoma of the rectum. Abdominal perineal resection and a colostomy were performed in 1950 with good result. A chest roentgenogram made in November, 1950, was presumed to be negative. This was made just prior to the abdominal perineal resection.

Postoperatively mental confusion in the patient, and a diagnosis of hyperthyroidism was made. He was started on propylthiouracil with good response. Shortly before leaving the hospital after the operation, he was given penicillin. On arriving home he had a moderately severe penicillin reaction manifested by urticarial lesions. Cortisone was given for some 30 days, and resulted in clearing of the skin lesions. The dosage given then is not known.

The patient continued to take propylthiouracil until the early part of 1952, when it was discontinued. In the spring of 1952 his basal metabolism rate was found to be plus 49, and propylthiouracil was recommenced. In December, 1953, he was given a shot of penicillin, and again manifested rather severe urticaria with angioneurotic edema and joint symptoms. A further 10-day course of cortisone was given, beginning with a dose of 200 mg. and tapering off.

He was seen by his doctor on January 7, 1954, at which time he was found by x-ray to have far advanced bilateral pulmonary tuberculosis. He was admitted to this hospital on January 14, 1954. His sputum had been reported positive for acid fast bacilli before admission, and he was treated with isoniazid and para-aminosalicylic acid. No further positive sputums were obtained. The patient did well on propylthiouracil. Roentgenograms showed marked clearing of the tuberculosis lesions. He was finally discharged as quiescent on March 17, 1955.

Case 2

A 71 year old white male clerk had a history of long standing rheumatoid arthritis. In November, 1949, the arthritis was growing worse, with soreness

and stiffness in the hands, the left leg, and both knees. In July, 1950, he was hospitalized and cortisone therapy was instituted. This was continued for more than two years—until November, 1952. During the course the dose had gradually been increased from 25 to 100 mg. daily in order to provide adequate symptomatic relief. In November, 1952, an acute respiratory infection developed. A chest roentgenogram revealed extensive far advanced bilateral pulmonary tuberculosis, with a large cavity in the right upper lobe. He was admitted to Mecklenburg Sanatorium November 25, 1953, and remained there until his transfer here on January 3, 1954. While in Mecklenburg Sanatorium he received streptomycin intermittently and para-aminosalicylic acid daily. There this regimen brought very little improvement in his condition, and at the time of admission here he was acutely ill and poorly nourished. His sputum was still positive for acid fast bacilli on smear. Bed rest and antibiotic therapy were continued. Response was slight and this patient finally expired on February 19, 1954.

Case 3

A 32 year old white female telephone operator began losing weight three years before admission. She also complained of a severe aching pain in the back of her knees and calves of her legs. The diagnosis was anemia and rheumatoid arthritis. She was hospitalized for a week and put on cortisone for about two weeks. This treatment gave no relief. A little later she was given a second course of cortisone. After this she felt fairly well for about a year and a half, when she again began to have increasing weakness, loss of weight and fatigue, with a return of pain in her knees. She was readmitted to a hospital and told that she had neuritis, not arthritis.

The patient improved on treatment with vitamin B₁₂ and liver and continued to do well for three months before her admission here. Her leg pains then became worse than ever, and she became markedly weaker with a loss of weight from about 82 to 120 pounds. She was admitted to another hospital where the diagnosis of peripheral neuritis was confirmed, and she was found for the first time on routine x-ray examination to have pulmonary tuberculosis. Chemotherapy was begun at home, but she became progressively worse, and was admitted to this sanatorium on November 16, 1953. While here she was maintained on streptomycin and isoniazid. Her sputum remained positive for acid fast bacilli for some time. It then became negative, but roentgenograms showed the persistence of a cavity in the right upper lobe. Resection was advised but was refused by the patient, and she finally left the sanatorium against medical advice. On discharge her condition was classified as active, improved.

Case 4

A 52 year old white male physician suffered acute pain and swelling of the left foot in October, 1952. After three or four days the right foot also became involved, and he had a temperature of 100 F. He

was admitted to a hospital a week after the onset of this condition. His blood uric acid level was slightly elevated on admission.

While in the hospital the patient was treated with cortisone for five days and on returning home continued to receive small doses for three weeks. This treatment seemed to give almost complete symptomatic relief. Since discontinuing cortisone and other therapy he had had no recurrence of symptoms. The patient recovered from his gout in October, 1952, but in December he had an acute respiratory infection with persistent symptoms, chiefly consisting of increase in cough, and expectoration of purulent sputum. A roentgenogram of the chest at this time showed changes in the right apex, and the sputum was found to be positive for acid fast bacilli on culture.

The patient was admitted to Western North Carolina Sanatorium on January 12, 1953. While in the Sanatorium he continued to receive streptomycin and para-aminosalicylic acid, which had been started before admission. Chemotherapy was continued until August 13, 1953, when isoniazid was substituted for para-aminosalicylic acid. The sputum was negative throughout his stay in the sanatorium, and planigrams failed to show any cavitation in the lesion in the apex of the right lung, which cleared steadily under treatment. The patient was discharged as arrested IV on October 30, 1953.

Comment

It becomes clear from the results of animal experiments that the general effect of corticosteroids on tuberculosis is the lowering of the host's resistance. It follows that the administration of cortisone or ACTH carries with it a real danger of reactivating unsuspected arrested tuberculosis, of exacerbating undiagnosed active disease, or of reducing the immunologic response to infection acquired during the period of treatment.

In none of the cases reported here were chest films obtained immediately prior to commencing steroid therapy, nor were they repeated at sufficiently short intervals during the therapy.

It should be noted that in one of the 4 cases here reported, tuberculosis was fatal in spite of adequate chemotherapy following diagnosis. Although only a minority of patients treated with steroids will have active tuberculosis, nevertheless the danger does exist, and when tuberculosis does appear it is often in a particularly pernicious form. The symptoms of tuberculosis may be completely

masked if steroids are still being given. The infection is often both unusually acute and resistant to treatment. It may run an unusually rapid course, becoming far advanced in from four to six weeks.

It seems clear, therefore, that before starting treatment with ACTH or cortisone, a careful search for tuberculosis foci should be made in every case. At least a roentgenogram of the chest should be obtained. If arrested disease is found, then the indications for giving steroid therapy must be very carefully weighed. If either of these drugs appear essential, then antituberculous chemotherapy probably should be given along with the steroids.

We recommend that chest films be repeated at least every month while steroids are being given, and at least every two months after the course of steroids is completed. In view of the often rapid advance of tuberculosis under these circumstances, there seems to be little chance of detecting active tuberculosis early enough to give effective treatment if roentgenograms are repeated less often than this.

Summary

Four new cases in which active tuberculosis apparently developed following administration of ACTH or cortisone have been presented.

In spite of repeated warnings, at least some physicians are apparently failing to take the necessary steps to detect tuberculosis before and during steroid therapy.

We recommend that every patient for whom either ACTH or cortisone is proposed should have an x-ray examination before treatment is commenced, and also a careful examination for the detection of unsuspected tuberculous foci. We feel also that so long as ACTH or cortisone is being given, x-ray studies should be repeated at monthly intervals; and further, that at the conclusion of steroid therapy films should be repeated at two-month intervals for not less than six months.

The federal highway program contains a provision for a one-year study of traffic safety, a problem which the American Medical Association has been actively interested for years.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

AUGUST, 1956

TRANSACTIONS AND ROSTER TO BE PUBLISHED SEPARATELY

Since the NORTH CAROLINA MEDICAL JOURNAL's first year, the Transactions of the Society have been published in the August issue. Until 1948 the membership roster was included in the same issue. Then the editorial board decided that the roster would serve its purpose better if published separately as a supplement to the Transactions number. The smaller book was more easily bundled, and the inclusion of the office addresses and telephone numbers of the members enhanced the value to hospitals, clinics, and other organizations, as well as to individuals. Many wanted the roster without the rest of the Transactions. Incidentally, representatives of a number of other

state journals have said that they were envious of our roster, and considered it the best of all the state journals in the country.

At a meeting in June, the editorial board decided to publish the Transactions of the Society also separately from the traditional August issue. It is to be combined with the Transactions of the Woman's Auxiliary and published later—probably as a supplement to the October issue. This arrangement gives our readers, for the first time since 1949, a regular issue in August.

The editorial board hopes that our readers will find time, even in this traditional vacation month, to profit by the extra mental pabulum provided. And this issue should not require as much time for reading as did the Transactions number—which is due to come in cooler weather.

* * *

TEST BY TESTAMENT

On May 6 the Federal Trade Commission announced its decision to drop its charges of false advertising against Pioneers, Inc., the company that produces the battery additive AD-X2. Thereby hangs an interesting tale—and a sad one.

Readers may recall that Secretary of Commerce Weeks in 1953 dismissed the Director of the Bureau of Standards after the Bureau reported that the additive was worthless⁽¹⁾. Such a storm of protest was aroused that Secretary Weeks reconsidered his action. Apparently, however, neither he nor the politicians interested have changed the opinion he expressed before the Senate Small Business Committee in 1953; that while he did not "want to be accused of overruling the findings of any laboratory . . . as a practical man, I think that the National Bureau of Standards has not been sufficiently objective, because they discount entirely the play of the market place." Continued pressure must have been exerted upon the Federal Trade Commission to make it change its original false advertising charges, on the ground that the "overwhelming weight" of consumer testimony . . . is with the respondents."⁽²⁾

Could it be that in the future we may see Gallup polls of consumers of such products as Hoxsey's Cancer Cure and Krebiozen in order to determine their therapeutic value? The manufacturers of such nostrums as the late unlamented Hadacol could muster

enough testimonials to justify the sale of their products—if testimonials are to replace scientific evaluation.

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* * *

THE CUP THAT CHEERS

The late Dr. Samuel Johnson, who called tea "the cup that cheers, but not inebriates," and who was said to drink his tea in oceans, would have heartily approved Dr. I. Phillips Frohman's article on tea in the *Medical Annals of the District of Columbia* for June. Dr. Frohman was chairman of a symposium on tea presented May 16, 1955 at the New York Academy of Sciences, and his *Annals* paper is based upon the findings of this group. Incidentally, it is pertinent to recall that the word "symposium" literally means a drinking party.

Those who have any misgivings about drinking tea should be reassured by his tribute to this beverage, which he says was discovered accidentally in 2800 B.C. by the Chinese philosopher, Chin-Mung when he was boiling water over a fire made from the branches of the tea plant. "Some of the leaves accidentally fell into the boiling water, and when he drank the water the exhilarating effect of this 'accidental' brew led him to popularize the custom of tea drinking." As Dr. Frohman remarks, "Surely any beverage able to stand the test of time since 2800 B.C. must be of some value to the human race."

Among the advantages of tea as a beverage Dr. Frohman lists: it is a nutritional but low-calory beverage; "a certain alertness without the loss of tranquillity"; an appreciable amount of vitamin C, riboflavin, pantothenic and nicotinic acids; a diuretic effect; and a vasodilator effect useful in angina pectoris and myocardial infarction. He maintains that it does not increase gastric acidity, but that it does increase the rate of gastric emptying by stimulating gastric motility.

It is comforting to know that tea so richly merits its place on so many tables.

One observation which in this season of the year would cheer Americans would cause British eyebrows to be elevated: that

iced tea has a more pronounced effect on gastric emptying than does hot tea.

Dr. Howard Rondthaler once said that he tried for many years to think what would shock an American as much as putting ice in tea does an Englishman. The answer that finally occurred to him was: boiled watermelon, served hot.

* * *

HISTORY REPEATS ITSELF

For the second time in two years North Carolinians were among the top contestants in the national high school essay contest conducted annually by the American Association of Physicians and Surgeons. In 1954 two North Carolina high school boys won first and fourth places among the many thousand competitors. This year two Tar Heel girls topped that excellent record by capturing first and third honors. Mamye Roberson of Candler won first award, and Dorothy Regan, of Oxford, third.

Congratulations on the fine showing made by North Carolina in the national judging have been extended to the State Medical Society in a letter from Dr. Mal Rumph, chairman of the A.A.P.S. Contest Committee. On behalf of the Society, this JOURNAL extends hearty congratulations to the two young ladies whose achievements have brought honor to their native state as well as to themselves.

* * *

U.N.C. STUDENT WINS PRIZE-ESSAY CONTEST

For eight years the *New England Journal of Medicine* has conducted an annual prize-essay contest for medical students. The results of this year's competition, which ended March 15, was announced in the May 24 issue of that journal. It will be of particular interest to North Carolinians to know that the first prize, a check for \$100, was awarded to Laurence E. Early, of the fourth-year class of the University of North Carolina School of Medicine for his essay, "Extreme Polyuria in Obstructive Uropathy." The paper is to be published as a special article in a later issue of the *New England Journal*.

Congratulations and best wishes to Mr. Earley, and to the University School of Medicine!

President's Message

THIS POLIO QUESTION

In May of 1955 Governor Hodges appointed a North Carolina State Polio Vaccine Advisory Commission. This Commission was composed of lay and medical representatives, and its purposes were obviously the control and direction of the distribution of the Salk Polio Vaccine in North Carolina.

At its first meeting, in May of 1955, the Commission approved the 70:30 ratio which was then pretty well accepted throughout the country. This ratio was 70 per cent of the vaccine to be distributed to the private physicians through commercial channels, and 30 per cent to go direct to the Board of Health for distribution to the county health units.

At a meeting of the Commission in January of 1956, it was clearly shown that a rather large portion of the vaccine in the 70 per cent in commercial channels was not being used and that the 30 per cent for local health units was sadly inadequate, with many counties crying for more vaccine. The Commission then ruled that the State Board of Health be allowed to purchase from the surplus in commercial channels sums of vaccine needed by local health units where that need was documented by the local county medical societies. Twenty-five thousand cubic centimeters was to be left in commercial channels available to private physicians at all times. This action of the Commission met the approval of the Executive Committee of the State Medical Society and was rigidly adhered to.

In May of 1956 the Polio Advisory Commission was reappointed by Governor Hodges with the same personnel.

At a meeting of the Commission on June 21, 1956, some rather startling figures were presented. There was a backlog of approximately 450,000 cc. of surplus vaccine in the commercial channels. According to the State Board of Health records, less than 25 per cent of the eligible population had been inoculated through their facilities. There was no way of knowing what percentage had been inoculated through the private facilities of the physicians. The Commission unanimously requested the President of the

North Carolina Medical Society to appoint a committee from the Society to organize a program to increase the number of inoculations in our eligible population and in some way to collect necessary statistics as to those inoculations. A committee for the promotion of the use of the poliomyelitis vaccine in North Carolina was then appointed by the President of the State Medical Society from the members of the Society: The following members were appointed: Dr. S. F. Ravenel, Greensboro, chairman; Dr. Millard B. Bethel, Charlotte; Dr. Robert Foster Young, Roanoke Rapids; Dr. Ralph Garrison, Hamlet; Dr. William Spencer, Wilson; Dr. Frank Richardson, Black Mountain; Dr. Frank Reynolds, Wilmington.

Dr. Ravenel, in organizing this committee and planning its program, uncovered the following rather astounding facts: Roughly 1,935,000 persons in North Carolina were eligible for inoculation with the Salk vaccine. This number included all members of the population from birth through 19 years of age, and pregnant women. Of this number, less than one third had received their first or second doses. There was still roughly 450,000 cc. of surplus vaccine available in commercial channels, and it was understood that within a period of a few weeks it would be taken from North Carolina's allocation and used in other states. It was also discovered that North Carolina was forty-seventh among the 48 states in percentage of eligible population inoculated. It was felt that this low percentage in North Carolina was due to a failure to educate the people adequately and that an all-out program was necessary.

Dr. Ravenel called a meeting of his committee in Greensboro on July 15, 1956. This meeting was also attended by the President of the State Medical Society and representatives from the National Foundation of Infantile Paralysis and the State Board of Health. The committee unanimously agreed that a potential medical emergency existed. In view of the epidemic in Chicago, the localization of cases in several counties in the state, and with only a third of the most

susceptible portion of the population inoculated, North Carolina was considered in a vulnerable position.

Dr. Ravenel outlined a program for this medical emergency to start immediately and to last only through the polio season, at the end of which time the medical emergency would be over. This program consisted of intensive public education as to the need of the vaccine by television, radio, and press both on a state and local level, with the insistence that patients visit their doctors for inoculation. A program for mass free clinics for inoculation to last during the polio season, in which only surplus vaccine would be used, was also outlined. This met with the unanimous approval of the entire committee. It was agreed that this program was to be entirely sponsored and managed by representatives of the State Medical Society and by members of the county medical societies on a local level. The State Board of Health immediately agreed to purchase surplus vaccine and make it available to the mass clinics. The National Foundation for Infantile Paralysis immediately offered their entire services in an advisory capacity.

News articles on the day following the committee meeting brought varied response; in the great majority of the cases they were entirely favorable to and in support of the program. Within less than a week of the meeting, most of the major centers of population in North Carolina had already organized mass clinics and given wholehearted support to the program. This was followed by a similar response from most of the smaller communities.

At the time of this writing the program is in its infancy. By the time this article is published, it is hoped that it will be near its end and its value proved.

This program will have been carried out by tremendous efforts on the part of the State Medical Society's Polio Committee and the polio committees of the individual county medical societies. It has been adequately studied and its many implications considered. Those in charge believed that a potential medical emergency definitely existed, and that there was a call for medical services from the State Medical Society and the county medical societies which could not be denied. The implications of state and

socialized medicine were studied and were thought to be negligible.

It was hoped that by this program the middle third of the eligible population could be reached with the inoculations. It was the considered opinion of the planning group that the first third of the population were those intelligent people who readily accept the advice of the medical profession and had already been inoculated. The second third consisted of those who needed coaxing and extensive education. The last third was made up of those whom it is difficult to get to participate in any program.

It was felt that inoculation of two thirds of the eligible population would virtually eliminate the possibility of a polio epidemic in North Carolina during the polio season of 1956. It was also believed that it would educate the great majority of the people of our state as to the value of the vaccine to the extent that after the present emergency was over they would continue to seek their private physicians for immunity from polio. This action was considered a definite necessity, but from its inception was considered only as a temporary, emergency measure.

The committee was in full agreement with the statement made by the House of Delegates of the American Medical Association at the annual meeting in June, 1956 — namely, that the government should get out of the practice of medicine and leave the inoculation of the people with polio vaccine to the medical profession. The committee believed that this program in North Carolina would show that the medical profession is able and willing to fulfill this obligation even to the point of having mass free clinics in case of an emergency. Although it was organized to meet an emergency, every member of the Executive Committee of the State Medical Society was informed and each gave his approval and full support to the program in its entirety.

It was believed that thus the medical profession of North Carolina would take a forward step, not only towards the limitation of polio in this state, but towards proving to the people of the state that the medical profession is ready and willing to accept its full responsibility in giving adequate medical service to the entire population whenever and however it might be needed.

DONALD B. KOONCE, M.D.

BULLETIN BOARD

COMING MEETINGS

North Carolina Heart Association, Annual Meeting—Battery Park Hotel, Asheville, September 15-16.

North Carolina EENT Society and South Carolina Society of Ophthalmology, combined meeting—George Vanderbilt Hotel, Asheville, September 16, 17, and 18.

North Carolina Board of Medical Examiners meeting to interview candidates for licensure by endorsement of credentials—Sir Walter Hotel, Raleigh, September 24.

Second District Medical Society Meeting (Beaufort County Medical Society, host)—Washington, North Carolina, October 3.

Southeastern Allergy Association, Fall Meeting on Allergy Barringer Hotel, Charlotte, October 5-6.

A.M.A. Public Relations Institute—Drake Hotel, Chicago, August 29-30.

San Diego Postgraduate Assembly—San Diego County Hospital, San Diego, California, September 19-20. (Michael J. Feeney, M.D., 3416 Sixth Avenue, San Diego, California.)

Mississippi Valley Medical Association, Twenty-First Annual Meeting—Hotel Morrison, Chicago, September 26-28.

American Medical Writers' Association, Thirtieth Annual Meeting—Hotel Morrison, Chicago, September 28-29.

American Congress of Physical Medicine and Rehabilitation, Thirty-Fourth Annual Scientific and Clinical Sessions—The Ambassador, Atlantic City, September 10-14.

Postgraduate Medical School of New York University—Bellevue Medical Center, Eight-Week Course in Occupational Medicine—New York City, September 10-November 2.

Tennessee Valley Medical Assembly—Read House, Chattanooga, Tennessee, October 1-2.

Academy of Psychosomatic Medicine, Third Annual Meeting—Hotel Plaza, New York City, October 4-6.

American College of Surgeons, Forty-Second Annual Clinical Congress—San Francisco, October 8-12.

American Rhinologic Society, Annual Meeting—Chicago, October 9-13.

American College of Chest Physicians, Council on Postgraduate Education: Eleventh Annual Postgraduate Course—Hotel Knickerbocker, Chicago, October 15-19; Ninth Annual Postgraduate Course—Park Sheraton Hotel, New York City, November 12-16.

American College of Gastroenterology, Postgraduate Course in Gastroenterology—Hotel Roosevelt, New York City, October 18-20.

Pan American Association of Ophthalmologists, Fourth Interim Congress—Hotel Statler, New York City, April 7-10.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

An estimated \$300,000 building program for the Psychiatric Center of North Carolina Memorial Hospital at the University of North Carolina at Chapel Hill is scheduled to begin late this year.

Dr. Robert R. Cadmus, director of Memorial Hospital, announced that 50 per cent of the funds required for the project will be supplied by the federal government through the North Carolina Medical Care Commission. The remainder comes from the state.

Dr. Cadmus said that plans were expected to be available for contractors in September and that bids will be called for in October.

The Psychiatric Center is located in the hospital's South Wing, which was completed in January, 1955, with the exception of the major part of the ground floor.

Present plans call for the completion of the ground floor. This space will contain laboratories, offices and treatment rooms for the Outpatient Department of the Psychiatric Center.

A two-story addition to the present building also will be constructed. This addition will project east from the present building, making the completed building an L-shaped structure. South Wing is not a part of the Memorial Hospital Building, but is connected to it by an enclosed passageway.

The first floor of the new addition will be a flat floor auditorium which will be used for occupational and recreational therapy as well as for seminars and other educational purposes.

The second floor of the addition will connect with the Outpatient Department and will be used for offices and treatment rooms, particularly in child psychiatry. Approximately half of the work load carried by the center is with outpatients.

* * *

Dr. Charles E. Flowers, Jr., associate professor of obstetrics and gynecology, has received a research grant of \$8,856, Dr. Reece Berryhill, Dean of the University of North Carolina School of Medicine has announced.

The grant was made by the Cerebral Palsy United Research and Educational Foundation, Inc. for the 1956-1957 year, and is for a study to be made of the relationship of various anesthetic and analgesic agents to fetal anoxia at birth.

* * *

A grant of \$500 has been received by the School of Medicine from the Gaston County Heart Association, it has been announced.

The grant will be used by Dr. Carl E. Anderson, associate professor of biological chemistry and nutrition, for research and study of the biochemistry of normal and diseased cardiovascular tissue.

The Gaston County Heart Association is headed by Dr. Harry D. Riddle of Gastonia. Mrs. Naomi Cunningham, also of Gastonia, is executive director of the organization.

* * *

Dr. George C. Ham, professor and chairman of the Department of Psychiatry, has recently been appointed to two committees of national importance.

He has accepted membership on the Committee of Psychiatry of the Division of Medical Science, National Research Council of the National Academy of Sciences. He has also been asked to serve on the Selection Committee for Senior Research Fellowships of the National Institutes of Health. Members of this Committee will provide technical advice to the National Advisory Health Council and to the Surgeon General of the Public Health Service on this program.

* * *

Dr. W. P. Richardson, professor of preventive medicine, participated in the twenty-ninth annual session of the Blue Ridge Institute for Southern Social Work Executives held at Blue Ridge, North Carolina, from July 22 through 27.

Dr. Richardson served as a resource consultant for the Institute. The 1956 topic considered by executives and supervisors of local and state health, welfare and recreational and group work agencies, public and private, and representatives of national organizations and federal agencies was "Staffing Our Community Health and Welfare Services."

* * *

Dr. Sidney S. Chipman, clinical professor of pediatrics, U.N.C. School of Medicine, and Head of the Department of Maternal and Child Health of the U.N.C. School of Public Health left August 6 for a month's trip to the Philippines and Japan. He will be a consultant in pediatrics for the "Far East Air Force" located in these areas.

In this capacity he will be an adviser to personnel in the Air Force who have their families with them. This is Dr. Chipman's second such assignment. Last year he had a similar appointment in Europe with the Air Force.

In 1953 Dr. Chipman was in Japan and the Far East as a maternal and child health consultant for the World Health Organization of the United Nations.

* * *

The appointment of Dr. Walter R. Benson as assistant professor in the Department of Pathology at the University of North Carolina's School of Medicine has been announced.

Dr. Benson, who began his duties at U.N.C. recently, comes from the University of Louisville Medical School where he was an assistant professor during the 1955-1956 school term. He taught at Duke University in 1944.

Five faculty members of the School of Medicine took part in the thirty-sixth session of the Southern Pediatric Seminar held at Saluda, July 9-28.

Dr. Robert A. Ross, chairman of the Department of Obstetrics and Gynecology served as dean of the obstetric section of the seminar.

Dr. Charles E. Flowers, Jr., Dr. Richard L. Pearce, and Dr. Henry Fleming Fuller, School of Medicine faculty, served with Dr. Ross in the obstetric section of the seminar. Dr. Fuller is a clinical professor who lives in Kinston. Dr. Pearce holds the same post and resides in Durham.

Dr. Nelson K. Ordway, professor of pediatrics, worked with the pediatric section of the seminar.

* * *

Robert H. Bartholomew has been named Public Information Officer of the University of North Carolina Division of Health Affairs, Dr. Henry T. Clark, Jr., D.H.A. director, announced recently.

Mr. Bartholomew has been connected with the University for the past several years in various types of public relations work.

He is a native of Raleigh and a former resident of Goldsboro. He is a graduate of the Goldsboro High School and received his higher education at Louisburg College, Duke University, and the University of North Carolina. He is a veteran of World War II, having served in the Marine Corps from 1941 through 1945.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Recent grants to The Bowman Gray School of Medicine include the following: From the National Institute of Arthritis and Metabolic Diseases, a grant to study "The isolation, chemical analysis, and immunological studies of protein components of urine in health and in patients with renal calculous disease," with Dr. William H. Boyce, assistant professor of urology, as principal investigator.

From the National Institute of Neurological Diseases and Blindness, a grant to determine "The effect of heavy metals on brain and liver," with investigators Dr. Martin G. Netsky, professor of neuropathology, Dr. Norman M. Sulkin, associate professor of anatomy, and Dr. J. H. S. Foushee, Jr., instructor in pathology.

From the National Heart Institute, a grant to study the "Organs of senile animal and human subjects," with Dr. Warren Andrew, professor of anatomy, as principal investigator.

From the American Heart Association, a continuation grant for the study of "Measuring blood flow in humans," with Dr. Merrill P. Spencer, assistant professor of physiology and pharmacology, as the investigator.

From the Research and Development Division of the Smith, Kline and French Foundation, a grant

for the further support of the development of the Department of Microbiology and Immunology, under the direction of Dr. Robert L. Tuttle.

From the National Institute of Neurological Diseases and Blindness, a grant for "Glaucoma study," under the direction of Dr. R. Winston Roberts, associate professor of ophthalmology.

* * *

Dean C. C. Carpenter is now in Viet Nam, Saigon, where he is assisting Dr. Benjamin Horning, director of international education for the Kellogg Foundation, in a survey of medical education facilities. The survey is being conducted under the auspices of the U. S. International Cooperation Administration.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

A new edition of "Formulating X-Ray Technics" by John B. Cahoon of the Duke University Medical School and Hospital staff has just been published by the Duke Press.

Dealing with the technical aspects of x-ray work, the book was written primarily for student technicians. The first of four editions appeared in 1950.

Cahoon, technical associate in radiology at the Duke Medical School and Hospital, is a member of the American Society of X-Ray Technicians. For the Society he has been an instructor in Minneapolis, Minnesota, San Francisco, California, and Columbus, Ohio. In 1950 he was a guest instructor for the Ontario Society of Radiographers in Toronto, Canada, and this year he was guest instructor at a meeting of the Texas Society of X-Ray Technicians in Houston, Texas.

NORTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS

The North Carolina Board of Medical Examiners will meet at the Sir Walter Hotel, Raleigh, North Carolina, Monday, September 24, 1956, at which time applicants for licensure by endorsement of credentials will be interviewed.

NORTH CAROLINA CHAPTER, AMERICAN COLLEGE OF SURGEONS

Plans for a meeting of the newly organized North Carolina Chapter of the American College of Surgeons are in the making for a meeting the latter part of January. The officers and council met and agreed that this chapter should be for surgeons in every field of surgery and not just general surgery. Fellows of the College residing in North Carolina are urged to join and strengthen this newly organized chapter.

Officers of the North Carolina Chapter are: president, Dr. William Sprunt of Winston-Salem; vice president and president-elect, Dr. George Wood of

High Point; secretary-treasurer, Dr. Alexander Webb, Jr., of Raleigh. Councilors are: Dr. Howard Bradshaw of Winston-Salem, Dr. Edwin Alyea of Durham, Dr. William Farmer of Fayetteville, Dr. James Marshall of Winston-Salem, and Dr. Russell Lyday of Greensboro.

NORTH CAROLINA SOCIETY OF INTERNAL MEDICINE

Among the youngest organizations of medical specialists in North Carolina is the new State Society of Internal Medicine.

The Society was conceived early in 1955, and its organization was begun at a meeting at Sedgefield Inn, Greensboro, in March, 1955. The membership is limited to internists who are required to meet the following qualifications:

1. Fellowship in the American College of Physicians, or
2. Certification by the American Board of Internal Medicine
3. Good standing in the component county and state societies and in the American Medical Association
4. One year's practice in the respective community.

The membership of the Society has already reached approximately 100, and it is hoped that in the near future a good majority of qualified internists in the state will be included.

The purpose of the organization is similar to that of other specialty groups in the state. It will interest itself in socio-economic topics, and in legal and insurance matters relative to the practice of internal medicine. From a scientific standpoint, every effort will be made to correlate its efforts with those of other state societies in order to maintain existing high standards and to continue to elevate the quality of internal medicine in every section of the state. It is planned, at present, to hold meetings in conjunction with the regional meeting of the American College of Physicians during the winter and the Medical Society of the State of North Carolina during the summer.

Spokesmen for the organization have emphasized that the group is by no means in competition with any other organization or medical group within this state. It was formed and continues to operate in a spirit of complete cooperation.

At present the group is headed by Dr. James M. Alexander, of Charlotte, the Society's first president, and Dr. Ralph Fleming of Durham, president-elect. Dr. Horace H. Hodges of Charlotte is chairman of the Public Relations Committee.

NORTH CAROLINA EENT SOCIETY

The combined meeting of the North Carolina EENT Society and the South Carolina Society of Ophthalmology and Otolaryngology will convene in the George Vanderbilt Hotel, in Asheville, on September 16, at 5 p.m. for a three-day meeting.

The following are the speakers: in ophthalmology, Drs. Harold W. Brown and Bryon Smith of New York and Dr. Harold Schere of Philadelphia; in otolaryngology, Dr. Lawrence Boies of Minneapolis, Dr. Thomas Hardy of Baltimore, and Dr. John Converse of New York.

NORTH CAROLINA HEART ASSOCIATION

What happens to the heart during fainting? How do emotions affect the heart? How does the body maintain a blood supply to the heart and brain under conditions of disease and physical stress? How does salt affect blood pressure? What is the easiest way to by-pass blood from the heart during operations, so surgeons can work in a "dry field"?

These are some of the questions being explored by medical scientists in North Carolina, which is fast becoming an important center for heart research. More than half a million dollars was spent on this work in the state last year, and the amount allocated for the coming fiscal year promises to surpass this sum.

Already assigned to heart research projects at Duke, the University of North Carolina, and Bowman Gray are grants of over \$80,000 from the American Heart Association, the North Carolina Heart Association, and some of its local chapters. The Edgecombe-Nash Chapter is supporting three projects, the Durham-Orange and Wilson Chapters are each supporting two projects, and the Cleveland and Gaston Chapters are each supporting one. Projects in this state receiving grants from the Heart Fund are:

Dr. Carl Anderson, U.N.C., studying the metabolism of cardiovascular tissue

Dr. Richard L. Burt, Bowman Gray, studying the metabolism of carbohydrates during pregnancy

Dr. McChesney Goodall, Duke, studying the effect of cutting certain nerves on blood pressure

Dr. Carl W. Gottschalk, U.N.C., studying the link between heart and kidneys

Dr. Edwin P. Hiatt, U.N.C., studying the influence of dietary salt on blood pressure

Doctors Frank R. Johnston and C. Glenn Sawyer, Bowman Gray, studying drugs to control ventricular fibrillation

Dr. Grace P. Kerby, Duke, investigating the metabolism of connective tissue in normal patients and those with rheumatic diseases

Dr. William H. Knisely, Duke, measuring the volume of blood vessels

Dr. Dan A. Martin, U.N.C., studying the effect of emotions on the course of heart disease

Dr. Henry D. McIntosh, Duke, studying the response of circulation to changes of intrathoracic pressure

Dr. Will C. Sealy, Duke, developing by-pass apparatus for open heart surgery

Dr. Herbert O. Sieker, Duke, studying the effect of obesity on the pulmonary and circulatory systems

Dr. Bodil Schmidt-Nielsen, Duke, studying how the kidney regulates the excretion of waste from the body

Dr. Merrill P. Spencer, Bowman Gray, studying the way the beat-by-beat volume of blood is sent by the heart to different organs

Dr. Arnold Weissler, Duke, investigating what happens to the heart and blood vessels during fainting

Dr. Kerr L. White, U.N.C., studying the influence of emotions on blood surgery

Dr. Daniel T. Young, U.N.C., studying the effect of irregular breathing on the heart beat.

Nation-wide, the American Heart Association will spend \$1,800,000 on heart research. Grants to projects in this state will total more than the sum it received from the North Carolina Heart Fund this year.

Dr. James Watt, director of the National Heart Institute, on a recent visit to North Carolina, stated that the educational activities of the American Heart Association and its affiliates in each state were responsible in large part for the willingness of Congress to increase appropriations this year for heart research. With heart and blood vessel diseases responsible for more deaths than all other causes combined, and with coronary heart attacks increasing to what Dr. Paul Dudley White, President Eisenhower's physician, has called "epidemic proportions," it is becoming recognized that the chief hope for overcoming the nation's Number One Killer lies in research.

There is still far too little known about the causes of coronary thrombosis and many other forms of heart disease.

EDGECOMBE-NASH MEDICAL SOCIETY

At its regular monthly meeting held on June 13 the Edgecombe-Nash Medical Society went on record as opposing the Doctors' Plan and requested any member of the society who had agreed to participate in this plan to withdraw his agreement. Committees were appointed to inaugurate a statewide campaign of opposition to the plan and to make recommendations regarding the application of Negro members to the Edgecombe-Nash Medical Society.

Dr. Ed Robertson was program chairman for the July meeting and introduced as speaker a member of the Department of Surgery of the North Carolina Memorial Hospital in Chapel Hill.

NEWS NOTES

Dr. Harold R. Hoke has announced the opening of his office at 614 North Hamilton Street, High Point, for the practice of obstetrics and gynecology.

* * *

Dr. Robert T. Odom has reopened his office for the practice of general and thoracic surgery (including cardiovascular surgery) at 323 Nissen Building in Winston-Salem.

SOUTHEASTERN ALLERGY ASSOCIATION

The Southeastern Allergy Association will sponsor a meeting on allergy at the Barringer Hotel in Charlotte on October 5 and 6. In addition to panel discussions on "Pediatric Allergy" and "Chronic Lung Diseases in Chronic Asthma," papers will be presented by Drs. Carl E. Arbesman, president of the American Academy of Allergy, and Ethan Allan Brown, president of the American College of Allergists. The program will be accepted for credit by the American Academy of General Practice for 10 hours in category no. 2.

Arrangements to attend should be made by writing Dr. Katherine B. MacInnis, 1515 Bull Street, Columbia, South Carolina.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The twenty-first annual meeting of the Mississippi Valley Medical Society will be held at the Hotel Morrison, Chicago, September 26, 27, 28. More than 50 clinical teachers from leading medical schools will conduct the assembly, which will present the latest advances in medicine. The program will include six panel discussions: September 26, Recent Advances in Diagnosis and Therapy; Osseous Trauma. September 27, Gynecology; Coronary Thrombosis. September 28, Arthritis and Rheumatic Disease; Thyroid Disease.

The program will be conducted by leading clinicians from the medical schools of Chicago, St. Louis, Iowa City, Minneapolis, Milwaukee, Madison and Rochester, Minnesota, plus a number of clinicians from more distant states.

All members of the A.M.A. are cordially invited and urged to attend. Further details may be obtained from Harold Swanberg, M.D., Secretary, 209-224 W.C.U. Building, Quincy, Illinois.

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Martin A. Seidell, B.A., M.D., of Urbana, Illinois, a member of the Internal Medicine Staff, Carle Hospital Clinic, has been declared the winner of the 1956 Mississippi Valley Medical Society Essay Contest for his paper, "A Compendium for Fluid and Electrolyte Management with Ordinary and Extraordinary Laboratory Facilities." Dr. Seidell will present the paper at the twenty-first annual meeting of the Mississippi Valley Medical Society at the Hotel Morrison, Chicago, September 26-28. He will receive a gold medal, a certificate, and a cash award. Second prize in the contest went to Ethan Allen Brown, L.R.C.P., of Boston, Massachusetts, for his paper "The General Practitioner and Drug Allergy," and third prize to Willard E. Hauser, M.D., of Cleveland, Ohio, for his paper "Disorders of Electrolyte Metabolism." All the

essays will appear in the January, 1957, issue of the *Mississippi Valley Medical Journal*, (Quincy, Illinois).

AMERICAN MEDICAL WRITERS' ASSOCIATION

The thirteenth annual meeting of the American Medical Writers' Association will be held at the Hotel Morrison, Chicago, September 28-29. More than 20 medical writers and journalism instructors will address this meeting of "North America's Only Association Devoted to Improvement of the Communications of Medicine."

All members of the A.M.A. and collegiate graduates interested in medical communications are cordially invited and urged to attend. Preceding the evening meeting, which will feature a contest on non-medical writing and a talk by Dr. Dwight Murray, President of the A.M.A., there will be a fellowship hour with the compliments of the Schering Corporation.

Further details may be obtained from Harold Swanberg, M.D., Secretary, 209-224 W.C.U. Building, Quincy, Illinois.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

The Commission on Nutrition of the Pennsylvania State Medical Society is now making available a new revised edition of its **Manual of Standard Therapeutic Diets**. The first edition, issued several years ago, proved so popular that supplies were soon exhausted.

More than 30 separate diets are presented. These cover a wide variety of nutrition needs from liquid diets through soft diets to various types of modified diets. Recommended daily dietary allowances are given as well as a food composition table for a short method of dietary analysis. The Manual is being sold for \$1 per copy.

The Manual is being offered at no charge to all senior medical students in the six medical colleges in Pennsylvania. Distribution of the Manual to this group will impress the students with the importance of diet therapy in medical practice and will acquaint them with one of the most important educational services of the State Medical Society.

Others may obtain copies of the Manual by sending \$1 in cash, check or money order to The Commission on Nutrition, 230 State Street, Harrisburg, Pennsylvania.

RHODE ISLAND MEDICAL SOCIETY Fiske Essay On Infertility

The Trustees of America's oldest medical essay competition, the Caleb Fiske Prize of the Rhode Island Medical Society, announce as the subject for this year's dissertation "**The Present Day Treatment of Infertility**." The dissertation must be typewritten, double spaced, and should not exceed 10,000 words. A cash prize of \$350 is offered.

Essays must be submitted by January 10, 1957.

For complete information regarding the regulations write to the Secretary, Caleb Fiske Fund, Rhode Island Medical Society, 106 Francis Street, Providence 3, Rhode Island.

Dr. John E. Donley, a past president of the Rhode Island Medical Society and the medical director of the Rhode Island Curative Center, has been named as the new editor-in-chief of the **Rhode Island Medical Journal** to succeed the late Dr. Peter Pineo Chase. Announcement of the selection of Dr. Donley by the Committee on Publications of the Society was made by Dr. Charles J. Ashworth, chairman. John E. Farrell, executive secretary of the Society, continues as managing editor.

Dr. Donley, one of the Society's most distinguished members, was the recipient of the City of Providence Charles V. Chapin medal award a year ago, and in 1953 he received a citation from President Eisenhower's Committee on National Employment of the Physically Handicapped for his "outstanding services to the disabled" in Rhode Island.

A native of Providence where he completed his high school education at Classical, Dr. Donley received his bachelor of arts and master of arts degrees from Seton Hall University in New Jersey prior to completing his medical college work at the University of Pennsylvania. He returned to Providence where he has practiced medicine since, specializing in neuropsychiatry.

AMERICAN MEDICAL ASSOCIATION NEWS NOTES

Society Leaders Invited To A.M.A.'s Public Relations Institute

Concentrating on one big public relations meeting this year, the American Medical Association announces plans for its 1956 Public Relations Institute to be held August 29-30 at Chicago's Drake Hotel. This two-day session will combine the socio-economic discussions formerly reserved for the Public Relations Conference with the idea exchanges usually on the institute program.

Especially invited are the men and women who work with medical society public relations programs—society officers, public relations committee chairmen, society lay personnel, auxiliary public relations chairmen, and medical school public relations personnel. Registrants will be the guests of the Association at luncheon sessions. Room reservations should be made directly with the Drake Hotel.

A.M.A. Exhibits for Local Health Fairs

Health fairs sponsored by local medical societies have proven their worth as a primary means of spreading authentic health information as well as good public relations for the medical profession.

At these fairs, many American Medical Association exhibits will be displayed, augmented by

exhibits from voluntary health agencies, state and local health departments, government agencies and other interested groups.

New A.M.A. Pamphlets on Family Doctor

Expert advice concerning the importance of periodic health examinations is capsuled in an attractive new pamphlet recently published by A.M.A.'s Council on Rural Health. Titled "Check and Know," this 16-page booklet points up the advantages of having a complete physical checkup at regular intervals and keeping an accurate health record of all members of the family. Another pamphlet, designed as a companion piece, discusses the reasons for having a family doctor and for having a sound doctor-patient relationship. The second pamphlet, also 16 pages, is entitled, "A Member of the Family—Your Doctor."

Samples of each are being sent to directors of extension services and home demonstration leaders of land grant colleges, leaders of farm bureaus and the Grange, and members of state rural health committees. State medical societies may secure additional copies from the Council.

New Radio Series On Home Safety

Having safe and sane fun in and around the house is the theme of a new series of radio transcriptions the A.M.A.'s Bureau of Health Education has produced for use over local radio stations. This "Safe at Home" series features short dramatizations of familiar family situations interspersed with popular musical renditions by the Roger Steele trio.

Fred V. Hein, Ph.D., educational consultant for the Bureau of Health Education, serves as the health authority. Bookings may be arranged for this series through the Bureau.

AMERICAN UROLOGICAL ASSOCIATION

The American Urological Association offers an annual award of \$1,000 (first prize of \$500, second prize \$300 and third prize \$200) for essays on the result of some clinical or laboratory research in urology. Competition shall be limited to urologists who have been graduated not more than ten years, and to hospital interns and residents doing research work in urology.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Hotel William Penn, Pittsburgh, Pennsylvania, May 6-9, 1957.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1956.

AMERICAN RHINOLOGIC SOCIETY

The American Rhinologic Society will hold its annual meeting in Chicago, October 9-13.

The profession is welcome to attend the scien-

tific session as guests of a member of the Society. There is no registration fee.

Further information may be had by writing to Mrs. Mabel Campbell, corresponding secretary, 834 Wellington Avenue, Chicago 14, Illinois.

AMERICAN COLLEGE OF SURGEONS

Developments in surgical research, techniques, and philosophy will be discussed during the world's largest meeting of surgeons, the forty-second annual Clinical Congress of the American College of Surgeons, in San Francisco, October 8 through 12, 1956.

For the first time, student representatives from 16 medical schools will attend the Clinical Congress, at College expense. In cooperation with deans of approved medical schools of this country and Canada, it is planned that a number of senior medical students will attend Congress meetings every year. Schools will participate in rotation, depending upon the geographic location of the meeting. Students will be selected by vote of their classmates.

Headquarters for the Congress will be the Civic Auditorium, with some of the scientific sessions scheduled at the Fairmont and Mark Hopkins Hotels.

AMERICAN COLLEGE OF PHYSICIANS

A research grant of \$43,100.00 has been awarded the American College of Physicians for the period September 1, 1956, through August 31, 1957, by the Department of Health, Education, and Welfare of the Public Health Service in furtherance of its project to evaluate internal medicine in hospitals. This project, "to establish a minimal standard of quality and efficiency of the practice of internal medicine in hospitals," was initiated in early 1956, by the College's Committee on Criteria for Hospital Accreditation, under the chairmanship of Dr. Arthur R. Colwell, Sr., F.A.C.P., Chicago.

The Director of the study is Dr. Marion A. Blankenhorn, F.A.C.P., Cincinnati, who is devoting his full time to the project. A pilot study of approximately one hundred representative hospitals is being conducted by observing practice methods with particular reference to internal medicine.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The Council on Postgraduate Medical Education of the American College of Chest Physicians will sponsor the following Postgraduate Courses on Diseases of the Chest this fall:

Eleventh Annual Postgraduate Course, Chicago, Illinois, Hotel Knickerbocker, October 15-19

Ninth Annual Postgraduate Course, New York City, Park-Sheraton Hotel, November 12-16

Tuition for each course is \$75, which will include daily round table luncheons. The most recent ad-

vances in the diagnosis and treatment of chest diseases will be covered.

Further information may be obtained by writing: Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

INTERNATIONAL COLLEGE OF SURGEONS

Examinations for qualified fellows of the International College of Surgeons will be held in Chicago, October 29-30.

Oral conferences will be held on October 22.

For details, write to the Secretary of the Qualifications Council, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10, Illinois.

The twenty-first annual congress of the United States and Canadian Sections, International College of Surgeons, will be held in the Palmer House, Chicago, September 9-13. The meeting will be attended by surgical celebrities from many foreign countries as well as from all parts of the United States and Canada.

The International House of Delegates also will meet in the morning of the opening day, Sunday. In the afternoon, the House of Delegates of the United States Section will convene for the biannual election of officers and for other business.

General assemblies will be held mornings and afternoons, Monday through Thursday. Section meetings at the same hours will cover coloproctologic surgery, neurosurgery, obstetrics and gynecologic surgery, occupational surgery, ophthalmology and otorhinolaryngology, orthopedic surgery, plastic surgery, rehabilitation services, surgical nurses, and urologic surgery.

Further information may be had by writing to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10, Illinois.

JOINT COMMISSION ON MENTAL ILLNESS AND HEALTH

The Joint Commission on Mental Illness and Health has announced receipt of the first substantial grant from a private source in support of the three-year national mental health study it began earlier this year.

From the Joint Commission's Cambridge, Massachusetts, headquarters, Dr. Jack R. Ewalt, study director, announced that the Smith, Kline and French Foundation of Philadelphia has made a \$25,000 grant for general support of the Commission's work. The Foundation, established by the pharmaceutical laboratories of the same name, carries on a \$125,000-a-year research and training grant program in the mental health field.

Dr. Kenneth E. Appel of Philadelphia is president of the Joint Commission on Mental Illness and Health and Dr. Leo H. Bartemeier of Baltimore is chairman of its board of trustees.

PAN AMERICAN SANITARY BUREAU

A strategy for total war against malaria, aimed to eradicate the disease throughout the world, has been drawn up by the WHO Expert Committee on Malaria.

The nine-member Committee held its sixth session in Athens in late June, under the chairmanship of Dr. G. Livades, professor at the Athens School of Hygiene. The Committee not only confirmed that malaria eradication was feasible, but that its enormous economic and social advantages made it the only rational policy to adopt.

The sums required to achieve eradication within a definite time, although substantial, are much less than the cost of continued malaria control of a less intensive character on a long-term basis. Moreover, at the present time, several international and national agencies, such as UNICEF, UN Technical Assistance and the U. S. International Cooperation Administration are ready to assist governments that embark on such a program.

The members of the Committee, pooling experience gained in such widely separated areas as Taiwan and Italy, India and Venezuela, recognized that one of the most urgent reasons for carrying out malaria eradication with the least possible delay, was the growing resistance of the mosquito carriers of malaria to insecticides like DDT.

PAN AMERICAN ASSOCIATION OF OPHTHALMOLOGY

Eye specialists from all the countries of the Western Hemisphere will gather in New York City, April 7-10, 1957, at the Hotel Statler, for the Fourth Interim Congress of the Pan American Association of Ophthalmology, according to an announcement by Dr. Brittain F. Payne, New York, president of the Association. The Congress will be held in conjunction with the annual meeting of the National Society for the Prevention of Blindness.

Dr. J. Wesley McKinney, Memphis, Tennessee, is executive secretary of the Association for coun-

tries North of Panama, and Dr. Jorge Balza, Buenos Aires, for those South of Panama.

Dr. Payne advises that ophthalmologists planning to attend the Congress make their reservations with the Hotel Statler direct.

(Bulletin Board continued on page 390)

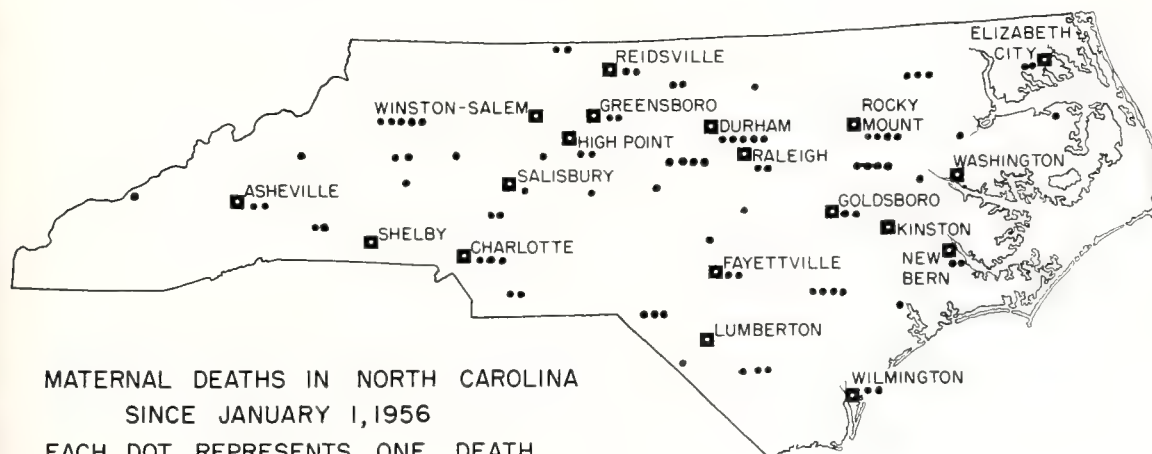
Non-Medical Hospital Care

A new film, *The Patient Is a Person* (Hospital Care) has just been made available by the Smart Family Foundation as a public service to physicians, medical organizations, and hospitals at a nominal cost. The film explores the fearful attitudes which many patients exhibit on entering the hospital, and suggests techniques of non-medical care which may help to allay these fears and contribute to the patient's rapid recovery. It stresses the ways in which physicians, the admitting clerk, nurses, volunteers, administrative help, and housekeepers can maintain the patient's confidence in the hospital team and fill his needs as a person.

The Patient Is a Person is presented as a public service by the Smart Family Foundation in co-operation with the American Medical Association and the American Hospital Association. A 16 mm. sound motion picture in color, 20 minutes running time, *The Patient Is a Person* may be purchased for \$50 in color or \$10 in black and white from either of the above mentioned organizations. The film may also be rented from these two groups at a nominal rate.

Classified Advertisements

WANTED: Physician for Community of approximately 4,000 persons. Two Hospitals in the radius of 10 miles to assist when necessary. If interested contact Mr. J. Y. Howell, Jr., Grover, N. C. or Mr. Paul Hambright, Grover, N. C.



The Month in Washington

If medical research doesn't move ahead in the current fiscal year (ending June 30, 1957), it won't be the fault of Congress. The seven research organizations that make up the National Institutes of Health have far more money than they have ever had, and probably much more than their directors even dared hope for last winter at the start of hearings on their budgets. Every one of the research institutes received a substantial increase over last year, and the funds of five of them were almost doubled.

The institutes have a total of \$170.4 million to spend before next July 1. This is about 80 per cent more than they had last year. In discussing the appropriations bill on the Senate floor, Senator Lister Hill (D., Ala.) said the bulk of the money will go for grants to non-federal institutions—hospitals, medical schools, clinics and state and local organizations engaged in research.

A breakdown by disease categories shows the following picture:

For cancer research, \$48,400,000, in contrast to \$24.8 million for the previous year. This year's total is \$16 million more than the administration asked when budget requests were sent to Congress in January.

For mental health work, \$35,100,000, in contrast to last year's \$18 million. This is \$13.4 million more than had been requested originally.

For heart disease research, \$33,300,000, compared with \$18,700,000 last year and \$22,100,000 originally requested.

For work on arthritis and metabolic diseases, \$15,800,000, or \$5,100,000 more than last year and \$2,500,00 more than Congress was asked for.

For research in neurology and blindness, \$18.6 million, compared with \$9.8 million last year and \$12.1 million originally requested.

For work on allergies and infectious diseases, \$13.2 million, compared with \$7.5 million last year and \$9.7 requested.

For dental research, \$6,000,000. While this is small compared with money voted for other U. S. research institutes, it is almost

triple the \$2.1 million spent last year. The huge increase is the result of a sustained campaign by the American Dental Association.

Senator Hill and Rep. John E. Fogarty (D., R. I.) led the fight in Congress for the record-breaking research appropriations. Under the latter's chairmanship, a House appropriations subcommittee boosted the total for the seven institutes to about \$124 million, a figure that was accepted both by the full Appropriations Committee and the House.

In addition to heading the Senate appropriations subcommittee that handled this funds bill, Senator Hill also is chairman of the Labor and Welfare Committee and extremely active in health legislation. His subcommittee pulled up the totals to \$170 million. After the Senate-House conference committee disagreed on the spending, Rep. Fogarty carried the fight to the floor, where he persuaded the House to accept all of the higher Senate figures.

Other federal health programs, mainly concerned with disease control and hospital construction, also fared well with the Congress. The Hill-Burton program, for construction grants to hospitals, has \$125 million for the current year, or \$14 million more than last year. For vocational rehabilitation grants, the figure is \$41.5 million, a \$2.7 million increase; for general public health assistance to states, it is \$18.16 million, a \$600,000 increase; for Indian health work, it is \$38 million, a \$3.3 million increase.

Notes

With Salk vaccine being released in ever expanding volume, the Public Health Service is urging states and communities to increase the priority age to 20 and to use up supplies as fast as received. Said Secretary Folsom: "I urge parents, physicians, and health officials to cooperate in making the maximum use of the increasing supply as soon as it becomes available . . ."

* * *

Civil Aeronautics Administration, believing the time has come to review procedures in pilot medical examinations, has hired a private organization to conduct a thorough investigation and make recommendations. Two questions: Should lower standards be

allowed for older, experienced pilots? Should crew members and ground crewmen, as well as pilots, be examined periodically?

* * *

Less than three months after his third appointment to a four-year term as Surgeon General of U. S. Public Health Service, Dr. Leonard Scheele resigned to take a post in the pharmaceutical industry so he could "provide more properly" for his family.

Although no new legislation was enacted in that field, witnesses at a long series of hearings on civil defense were pretty much in agreement that the job can't be done properly unless more authority is voted to the Federal Civil Defense Organization.

BOOK REVIEWS

The Menninger Story. By Walker Winslow. 350 pages. Price, \$5.00. Garden City, New York: Doubleday and Company, 1956.

The cover of this book describes it as "A biography of Dr. Charles Frederick Menninger and the story of the clinic he founded." The book more than comes up to the expectations roused by this description. The author gives us an intimate, heart-warming introduction to a great family. Both Dr. Charles Menninger and his wife Flo were sturdy individualists, as were their three sons; but the father and two of his sons, Karl and Will, worked together in the closest harmony in building the greatest psychiatric center in the country. The third son, Edwin, was kept from also being a physician by an accident which cost him the sight of his right eye and the loss of the ring finger of his left hand.

The book tells not only of Dr. Charles Menninger, but much about his famous sons, and their influence upon psychiatry. Mr. Winslow emphasizes that much of the success of the Menningers in psychiatry was the fact that the father became a broadly trained family doctor, and he and both

It is hard to recommend this volume too strongly his sons were able to see a patient as a whole, as a fascinating and informing account of one of America's truly great medical families.

The Complete Medical Guide. By Benjamin F. Miller, M.D. With illustrations especially prepared by Paul Larkin. 913 pages. Price, \$4.50. New York: Simon and Schuster, 1956.

As the name implies, this is a book of advice about all the medical problems that arise in the average household. That Dr. Miller spent 12 years in its preparation is evidence of the difficulty of

writing such a book, as well of as his determination to do a good job. It is hard to steer between the Scylla of alarming the lay reader and the Charybdis of minimizing danger signals.

Any attempt to explain disease to a layman is almost certain to alarm apprehensive readers. Dr. Miller, however, has succeeded about as well as any could in steering the proper course, and in achieving his avowed aim to make the book "an extension of your personal physician, not as a replacement for him."

Part One, "Your and Your Body," gives sound advice about the general care of the body, including diet, weight, vacation, and hygiene.

Part Two, "You and Your Mind," discusses the normal, the partially sick, and the sick mind.

Part Three, "You and Your Home," gives wholesome advice about marriage, sex, parenthood, and the problem of childhood and adolescence.

Part Four, "You and Your Doctor," tells the reader to select a personal physician before he is actually needed, then tells how to go about choosing one. There is also a helpful clarification of some misunderstood principles of medical ethics.

Part Five, "You and Your Special Problems," deals with various diseases, classified as "The Killers," "The Disabling Diseases," and "The Nuisance Ailment."

Other sections are devoted to "Problems of Women," "The Later Years," and a philosophical discussion of "The Calculated Risk in Health."

This book can be recommended as one of the best of its kind yet attempted—and one which should do much more good than harm. The caution should be added, however, that it is written for adults, and the author himself says in the introduction that it is not recommended for children or adolescents.

Medical Support of the Army Air Force in World War II. By Mae Mills Link, Ph.D., and Hubert A. Coleman, Ph.D., 1,027 pages. Price, \$7.00. Washington, D. C.: Government Printing Office, 1956

This 1,027-page history, which required more than 10 years to compile, write, edit, and print, tells how military medicine was propelled into a new dimension as it became airborne. It contains valuable reading for military and civilian planners concerned with manpower, and every doctor will gain new insight into how the talents of the medical profession are forged into the iron framework of command to meet a national emergency. At the same time the volume is interesting general reading because the human element is never lost.

Each chapter is thoroughly documented, with footnotes for easy reference. The volume is well illustrated with charts, diagrams, and photographs and includes extensive tabular data. There is a detailed index.

In Memoriam

PHILLIP MINNIS SHERRILL, M.D.

1905-1956

On March 25, 1956, the medical profession, a community, and a family suffered a great loss in the tragic death of P. M. Sherrill, M.D.

His biographical data reveal that he was born in Tennessee, the son of the late Professor and Mrs. S. W. Sherrill. Dr. Sherrill was always very proud of his father, who was known as an educator and from 1915 to 1919 held the post of what is now the State Commissioner of Education. Dr. Sherrill received his Doctorate of Medicine at Vanderbilt School of Medicine in 1931 and interned at the University of Pennsylvania Hospital in Philadelphia for two years. Following this, he was Assistant Surgeon in the Coaldale Hospital, Coaldale, Pennsylvania, for two years. He then began the practice of medicine and surgery in Thomasville, N. C. in 1935.

He is survived by his wife Estelle, one daughter Jeanne, and one son Robert.

Dr. Sherrill was very prominent in the civic life of his community and was always a supporter of any project designed for the improvement of community life. In the medical field, he was a leader among his co-workers and while chief-of-staff of the hospital figured prominently in all efforts to improve the medical care of his community.

Throughout his tenure of practice in Thomasville one project was nearer to the heart of Dr. Sherrill than anything else. Here he combined his service to the community and to the medical profession as physician to the Mills Home, an orphanage located in Thomasville. Here, among the children, Dr. Sherrill was at his best. He was dearly loved by all the children and by the staff, he held the welfare of each child to be his own duty, and he was unflinching in his devotion to the orphanage.

Now, as a tribute to Dr. Sherrill, because of his devotion and love of children, both in the orphanage and the community, the staff of the City Memorial Hospital in Thomasville has approved a pediatrics ward in the hospital. It is felt that no greater tribute could be paid to the memory of Dr. Sherrill than to name in his honor a project designed for the benefit of a group of patients he loved so dearly. From the staff of the hospital and from funds have come donations for the Sherrill Pediatric Ward to honor a man who was devoted to his family, his community, to the medical profession, and most of all, to children.

May the life of Phillip Minnis Sherrill, M.D., be a guiding light to all as a symbol of truth, devotion and sincerity.

BULLETIN BOARD

(Bulletin Board continued from page 387)

UNITED STATES ATOMIC ENERGY COMMISSION

Award of twenty unclassified life science research contracts in the fields of medicine and biology was announced recently by the U. S. Atomic Energy Commission. The contracts were awarded to universities and private institutions as part of the AEC's continuing policy of assisting and fostering research and development in fields related to atomic energy as specified in the Atomic Energy Act of 1954.

DEPARTMENT OF THE ARMY

Fluoridation of drinking water at 21 Army posts in the United States, Alaska, Hawaii, and Puerto Rico has been approved to date, it was announced recently by Major General Silas B. Hays, The Surgeon General of the Army.

The fluoridation of drinking water at Army installations lacking the natural fluorine necessary for oral health was approved by the Army Medical Service in July 1954.

Through the cooperation of the Corps of Engineers, the fluoridation equipment and engineering skill required to install the process are assured. Each military post must obtain both the approval of the Surgeon General of the Army and the endorsement of the Corps of Engineers.

VETERANS ADMINISTRATION

Twelve neuropsychiatric hospitals of Veterans Administration are prepared to conduct medicine's first extensive evaluation of mental patient care to learn which treatments best promote the improvement or recovery of mentally disturbed patients.

Known as the psychiatric evaluation project (PEP), the program has three purposes:

1. To determine the relative effectiveness of different treatment techniques, such as drugs, electroshock, group psychotherapy, individual psychotherapy, and the various activity therapies now in use in VA hospitals.

2. To determine the relative effectiveness of different hospital designs, staffing patterns, and program emphasis in the treatment of psychiatric patients; and,

3. To permit valid estimates of the relative costs of the various elements in effective treatment programs.

The project director is Dr. Richard L. Jenkins, a psychiatrist with headquarters in VA's Mt. Alto hospital in Washington, D. C. Dr. Jenkins formerly was chief of psychiatric research in the VA Central Office at Washington.

NORTH CAROLINA

Medical Journal



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THE WAYS OF LIFE AND HEART DISEASE — PAUL DUDLEY WHITE, M.D.



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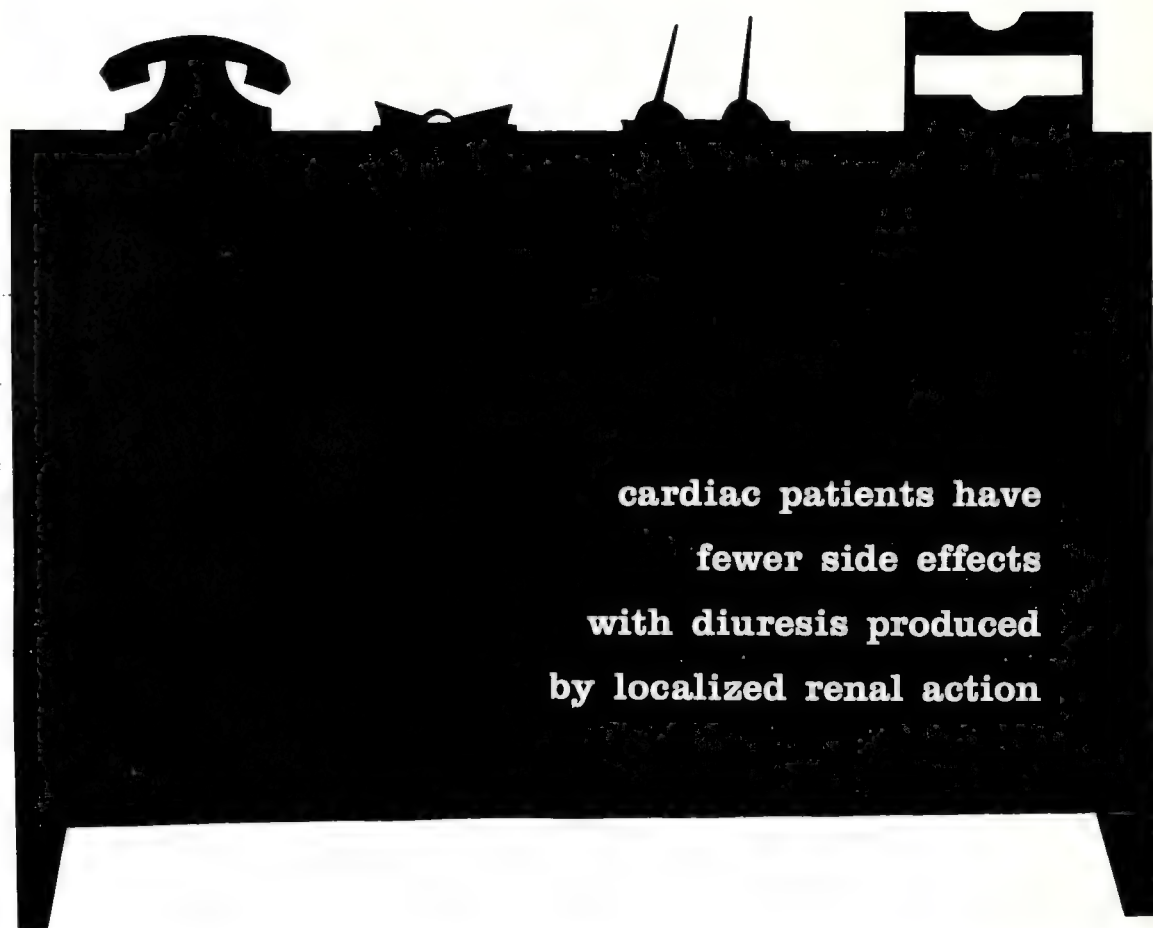
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VOLUME 17

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The Ways of Life and Heart Disease

A Plea for Positive Health

PAUL DUDLEY WHITE, M.D.

BOSTON, MASS.

I appreciate and welcome this opportunity to speak to you today on a subject which has to my mind become one of the most vital issues in the private as well as the public health of our country today. Throughout the land there has been developed by private enterprise and public support an excellent program of medical research and training in the study and treatment of the host of diseases that beset us. Beginning with the infections, one after another of these diseases has surrendered to our efforts or is being attacked in a very promising way. We may hope that, as William Osler prophesied in January, 1901, preventive medicine in this respect will have yielded great results during the present century.

Advice from the Ancients

But we need for several reasons something more than that. From my own experience in practice and in public health during the last 40 years, I believe that we should heed the advice of our medical ancestors who apparently knew more, or at least preached and practiced more than we, a program of positive health habits. And it is a matter largely of establishing better habits, not a painful daily or weekly program; this, however, must be positively arranged; for example, the habit of adequate exercise is just as important, I believe, as one's sleep, one's work, and one's food. We know a thousand times more about disease than our predecessors generations ago, but apparently infinitely less about health; at least we seem to, although I dare say that it is really only a matter of our faulty practice. We could certainly take a page or two of profit from an

old volume entitled "The Regimen of Health," translated into English in 1541 at the request of the then "victorious King of England and of France," Henry the Eighth, from the teachings passed down through the preceding centuries from the world's first medical school at Salerno.

Now I do not mean to say that we should become fanatical on the subject. We must use common sense and try to strike a balance between oversolicitude about our health decreed over two millenia ago by the Greek philosophers and our almost total neglect today, as indicated by the general disregard even for their own health by the medical profession in this country at present. Let me quote for a minute on both scores from the Dialogues of Plato written about four hundred years before Christ:

Well, I said, and to require the help of medicine, not when a wound has to be cured, or on occasion of an epidemic, but just because by indolence and a habit of life such as we have been describing, men fill themselves with waters and winds, as if their bodies were a marsh, compelling the ingenious sons of Asklepios to find more names for diseases, such as flatulence and catarrh; is not this too, a disgrace?

Yes, he said, they do certainly give very strange and new-fangled names to diseases. [And that still goes on, I might add.]

Yes, I said, and I do not believe there were any such diseases in the days of Asklepios. . . .

Bear in mind that in former days, as is commonly said, before the time of Herodicus, the guild of Asklepios did not practice our present system of medicine, which may be said to educate diseases. But Herodicus, being a trainer, and himself of a sickly constitution, by a combination of training and doctoring found out a way of torturing first and chiefly himself, and secondly the rest of the world.

How was that? he said.

By the invention of lingering death; for he had a mortal disease which he perpetually tended, and as recovery was out of the question, he passed his entire life as a valetudinarian; he could do nothing but attend upon himself, and he was in constant torment whenever he departed in anything from his usual regimen, and so dying hard, by the help of science he struggled on to old age.

A rare reward of his skill. . . .

Asklepios did not instruct his descendants in valetudinarian arts . . . because he knew that in well-ordered states individuals with occupations had no time to be ill. If a carpenter falls sick, he asks the doctor for a rough and ready cure—an emetic, or a purge, or a cautery, or the knife—these are his remedies. Should any prescribe for him a course of dietetics and tell him to swathe and swaddle his head, and all that sort of thing, he says, “he sees no good in a life spent in nursing his disease to the neglect of his customary employment; and therefore bidding good-bye to this sort of physician, he resumes his ordinary habits, and either gets well and lives and does his business, or if his constitution fails, he dies and has no more trouble.”

The Middle Course

In commenting upon this passage in 1939, I wrote what of course comes to mind today; namely, that there must be a sensible middle course, taking advantage first naturally of all the routine public health measures that have been introduced to protect us, and secondly, otherwise establishing habits of positive health, free of valetudinarianism, that can add at least to our comfort and very well may materially reduce some of the common threats of today, such as hypertension, coronary thrombosis, and the psychoneuroses, although much research still remains to be done in detail concerning their efficacy. Let me quote from that paper of mine published in 1939:

That old Asklepiian practice (of carrying on one's occupation despite some illness which in those distant days was incurable) certainly represents one extreme of medical care, or perhaps better called lack of care, but I rather suspect, in fact I am quite sure, that the “new medicine” that Plato ridicules and which is current in our own day represents the opposite extreme, probably equally pernicious. We have become soft and careless in acquiring many of the ills of mankind, except for infections upon which we have concentrated largely to the exclusion of other disease prevention, but once we have acquired these ills we are prone to

yield to them and to live lives of apprehension and invalidism. There must be a happy mean.

It is almost certain that our forbears practiced far better than we various rules of health that tend to delay or to prevent the so-called degenerative diseases of middle age, though vast numbers did succumb at early ages to the infections which we can now prevent.

Now let me briefly comment on some of these environmental factors and ways of life which may influence our health. I shall not discuss basic and constitutional factors, which are certainly in many instances of great importance but about which we can ourselves do little or nothing, such as race and heredity and age and sex. If we believe in a fatalistic way that nothing can be done to counteract unfavorable influences of these factors, life for us all would be grim indeed, but I for one feel quite certain that the establishment of common sense positive health measures can to a surprisingly large degree not only neutralize but actually transcend the hazards that may be inherent in such basic factors. What are some of these environmental factors that may act favorably or unfavorably upon us?

Work

The first that often comes to mind at this time in mid-century, but which actually has been a source of worry to mankind in every generation since the beginning of recorded history is “stress and strain.” We should carefully distinguish, in the first place, between the stresses of physical, of mental, and of emotional nature. In every case we must consider the host as well as the stress, for there are all degrees of resistance and of sensitivity of the host as well as degrees of the stress itself, a fact which makes an analysis of this environmental factor a very complicated problem. Physical strain includes, of course, much of the life work of many millions of persons in the world today, but it has yet to be proved that, barring rare exceptions of extremely strenuous labor and accidents on the job, work *per se* physically ever hurt a healthy man, woman, or child.

Unhappily industry and other physical occupations have been blamed (for lack of a suitable substitute for such blame in our way of life today) as the cause of many of the ills, even including coronary atherosclerosis, which in all probability are in no way associated with such physical activity. This is a serious error which is still currently

practiced today and for the sake of the future of this country urgently demands correction. Not only is physical work not responsible for most of these ills, but it is probably one of the most potent health habits which we should make full use of, perhaps most of all at older ages when too many hundreds of thousands of persons are retired to sit in armchairs and to drowse in front of television screens day after day, and even year after year, both to the detriment of their own health and to that of society, which could with more wise planning utilize their experience, and their accumulated wisdom, often for a good many years more, though perhaps at a decreasing tempo. I dare say that the one most important measure to improve and to maintain the health and happiness of our oldsters is to keep them working both mentally and physically; this would make unnecessary at least half of all the measures, medicinal, social, economic, and educational, that are now laboriously being introduced as geriatric devices. Of all my comments today this perhaps is of the greatest importance.

What I have said about physical work applies, I believe, also to mental work with one qualification, and that is that some sort of physical exercise should be helpful to the intensive mental worker, both for the sake of relaxation and for the benefit to the whole body of such exercise, a point which I shall come back to shortly. As in the case of physical stress and strain, I don't believe that mental stress and strain hurts a healthy man, woman, or child, provided it is not extraordinarily severe or prolonged, and provided that occasional respites for relaxation are offered preferably both by physical exercise of almost any sort and by some interesting avocation. It is the neglect of other measures of that type, and overindulgence in other practices that are doubtless the cause of the nervous prostrations, the high blood pressures, and the coronary thromboses that are currently blamed upon the stress and strain of the job, no matter what it is, with possible rare exceptions.

Thus it is my experience, and hence my belief, that hard work, physical or mental, never killed a healthy man—nor emotional stress either, with the rarest possible exceptions. Practically all the patients who have died under emotional stress that I have heard about (except in the case of suicides) have had adequate underlying physical causes with

irritability of heart or brain induced as a final event. Let me go back again in history on this point. Three times since the birth of Christ that I know about, the city of Rome has been visited by epidemics of sudden death; I dare say there have been other occasions, too, of which I know nothing. During the first half of the first century A. D. many prominent Romans, political, social, and professional leaders, died suddenly and apparently unexpectedly while going about their daily life, as recounted by Pliny the Elder. Undoubtedly, from the description most of these deaths were due to coronary insufficiency, but there were no autopsies. Remember this was at the height of the prosperity of the Roman Empire, and doubtless the Senators, the lawyers, and even the doctors had their own chariots and ate more than was good for them.

In the winter of 1705 to 1706 another epidemic of sudden deaths occurred in Rome to the consternation of the populace, who feared God's displeasure and supernatural causes. However, the combined wisdom of Pope Clement the Eleventh and his physician, Lancisi, resulted in the institution of autopsy study of similar cases during the next winter. Every case so studied demonstrated a natural cause of death, circulatory as a rule—for example, a cerebral hemorrhage or a ruptured aorta. A book resulted from this study dedicated to the Pope and called by Lancisi *De Subitaneis Mortibus*. Bishop John Wright and I are having this book translated, and we hope some day to publish the translation with an appropriate foreword.

And now we come to this last winter. A few weeks ago when I was in Rome I was asked to see patients who were fearful of another epidemic of sudden deaths there during the winter. The first case, a public official, although not yet a patient, was justifiably worried for he was a perfect candidate for coronary thrombosis and his electrocardiogram was already abnormal. Advice in time may rescue him if any advice we have today can be helpful. At the time of my visit to Italy early in May an interesting and beautifully equipped and well staffed hospital was inaugurated on a remote hillside in Southeastern Italy next door to a monastery which is visited yearly by many thousands of pilgrims from all over the world who come for help, physical and spiritual,

to Padre Pio, a Capuchin monk devoted to the welfare of these pilgrims.

Here is an opportunity for the study, as the Pope himself has announced, of psychosomatic medicine. Without a doubt, as recognized by our forefathers, the psyche has a very important influence on the soma, just as I am sure the soma has on the psyche, but we are barely at the threshold of knowing how and why. In some way, I believe, the bad effects of the alarm reaction, of grief, of fear, of anger, and of pessimism can be neutralized and even superseded by inculcation of the positive virtues of courage, patience, and optimism. Although many individuals are born with these traits, others must acquire them and we doctors can help.

Equanimity

And so we come to the second important positive aid to health, after that of work—namely, equanimity. Let me quote briefly from William Osler's valedictory address entitled "Aequanimitas," presented at the University of Pennsylvania on the first of May, 1889.

. . . a calm equanimity is the desirable attitude. How difficult to attain, yet now necessary, in success as in failure! . . . One of the first essentials in securing a good-natured equanimity is not to expect too much of the people amongst whom you dwell. . . .

Hence the need of an infinite patience and of an ever tender charity toward these fellow-creatures; have they not to exercise the same toward us?

. . . A distressing feature . . . which will press hardly upon the finer spirits among you and ruffle their equanimity, is the uncertainty which pertains not alone to our science and art, but to the very hopes and fears which make us men. In seeking absolute truth we aim at the unattainable, and must be content with finding broken portions. . . .

It has been said that "in patience ye shall win your souls," and what is this patience but an equanimity which enables you to rise superior to the trials of life? Sowing as you shall do beside all waters, I can but wish that you may reap the promised blessing of quietness and of assurance forever, until

"Within this life,

Though lifted o'er its strife,"

you may, in the growing winters, glean a little of that wisdom which is pure, peaceable, gentle, full of mercy and good fruits, without partiality and without hypocrisy.

Exercise

Now let me introduce briefly the more mundane factors of exercise and diet. To

make the most of our lives in their usefulness, happiness, and longevity, it behooves us to try to ascertain the value of certain ways of life for ourselves, our friends, our patients, and the world at large. Much has been said pro and con physical exercise, and we must still await more evidence of its value in the prophylaxis of such bothersome ills today as hypertension, coronary thrombosis, and nervous prostration. Studies now going on are beginning to indicate a positive value, and many of us hope that some good is being done in the way of preventive medicine in these directions by the establishment of sensible exercise habits as well as in the favorable effect on the circulation as a whole and in improving digestion and counteracting the results of excessive nervous tension and strains. Good muscle tone in legs and arms and diaphragm without question aids the circulation, and if we avoid sprains and strains and the breaking of bones we can feel, as I have many times personally, the delightful relaxation that comes with muscular fatigue. Some claim that they can live long and healthy lives with very little or no exercise, but I believe that there is a difference between positive health and simply the absence of disease.

So strongly am I convinced that exercise in proper amounts (and much more is needed by the mesomorph than by the ectomorph like myself) that I am making every effort to get the American young and middle-aged male back on his feet again. The women don't need exercise so much, though they can profit by it too. By the time I present these remarks I shall have visited Chicago to take part in the inauguration of several *safe bicycle paths* there, prior to the building of a proper path from a suburb into the city which will enable thousands of persons, men and women of all ages, to cycle to and from work regularly and safely. A ride of five or six miles twice a day (that is too far to walk) will be good for their health and their pocketbook and for the traffic congestion in the city. There is no reason whatsoever why this can't be done in nearly every city in the country, where eventually several paths in each can be built. Of course, this requires initiative, planning, and money, but in the long run it will be more than worth while to establish this routine and practical health measure to counteract, to some degree at least, the soft, push-button way of life that

we are threatening to bequeath to our children, who will need more than gadgets to survive in this world tomorrow.

Incidentally, it is of considerable interest that not only work (physical and mental) is being utilized in the convalescence and rehabilitation of cardiac patients, but even exercise in sports as a therapeutic measure as noted by Rautmann of Braunschweig in 1954.

Although we cannot prove as yet that John Dryden was correct when he wrote about 1680 to a kinsman who lived in the country a letter in which the following stanza appears, there is, I believe, more truth than poetry involved. I quote:

By chase our long-liv'd fathers earn'd their food;
Toil strung the nerves and purified the blood;
But we, their sons, a pamper'd race of men,
Are dwindled down to three score years and ten.
Better to hunt in fields for health unbought
Than fee the doctor for a nauseous draught.
The wise for cure on exercise depend;
God never made his work for man to mend.

Diet and Obesity

And now, finally, I would add a word about *diet* and *obesity*. Tobacco and alcohol I shall dismiss with the simple statement that their excessive use can be very harmful and that in the face of certain diseases and disorders they can do damage; their moderate use in healthy persons seems to do no harm. So far as obesity is concerned, we all know that life insurance and other mortality statistics do definitely point to the decreased longevity and more common illnesses in persons with considerable overweight, but the details of the diet, not the calories *per se*, are now being more extensively studied in researches on man himself.

The first findings have indicated in several parts of the world, in countries where different races or different groups of the same race ingest quite different amounts of fat in their diets, that those who are lowest in the economic scale eat the least fat, have the lowest content of cholesterol in their blood serum, and suffer the least from coronary

thrombosis. My own newest adventure in cardiovascular epidemiologic research earlier this spring was as a clinical colleague of Ancel Keys of Minneapolis and Bronte Stewart of Cape Town in comparing the Hawaiian Japanese (with origin in Southern Japan) with the Japanese still living in Southern Japan. Although my own data have not been completely analyzed as yet and although I have not yet learned what my physiologic colleagues found in the comparison of the serum cholesterol contents, it was very clear that the two chief differences in the two groups were that the Hawaiian Japanese ate much more fat and had more coronary thrombosis and at a much younger age, typical of our American pattern.

Thus is our prosperity endangering our lives, as perhaps did that of the well-to-do Romans in the first century A.D.? It may well be so, but much more study still remains to be done. Even if it proves to be true, we can still be prosperous, though with some revision of our routine ways of life. We may actually enjoy the resumption of vigorous physical exercise, the cultivation of equanimity, and the substitution of an attractive diet such as that to which we became accustomed in Southern Italy at 20 to 25 per cent fat for the excessively rich and quite unnecessarily fat loaded diet of 40 to 50 per cent fat to which we have become increasingly habituated in this country today.

Conclusion

In closing, I would make two pleas: first, for the more adequate support of epidemiologic research on man himself to determine more accurately the beneficial or harmful effects of the various ways of life, and second, to urge you, my medical friends and through you others, in this country or abroad, to support sensible habits aimed at achieving a state of positive health even before we have all the proof—we may all be dead before the researches are finished. Good health and a long life to you all.

The Therapeutic and Toxic Effects of Tranquilizing Drugs: Medical Aspects

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CHAPEL HILL

Tranquilizing drugs exert effects which are of concern to some physicians and not to others, in accordance with individual interests and specialties. The side effects, however, should be of interest to all.

Since more is known about reserpine and chlorpromazine, and they are widely used, more attention will be devoted to them. Brief mention will be made of azacyclonol (Frenquel). Other drugs such as meprobamate will not be considered because of insufficient clinical and experimental data for evaluation.

An estimated four to five million persons had been treated with chlorpromazine by late 1955⁽¹⁾. No such estimates are available regarding the use of reserpine but, having been introduced earlier, it probably has been dispensed to at least this number of patients. These facts alone make it important that we understand the indications and contraindications for the use of these drugs.

Rauwolfia and Reserpine

Rauwolfia was originally used in this country in the treatment of hypertension⁽²⁾. Both it and reserpine have continued to be popular with internists and others treating this disease. Its effect on the mood of hypertensive patients was so striking that it was soon used extensively in the treatment of emotional diseases, the purpose for which it was originally employed in India.

Dosage

No sharp distinction can be made between low and high dosages. Generally speaking, 0.1 to 1.0 mg. of reserpine a day is considered a low dose, and this is usually continued for several weeks or months in the treatment of chronic diseases. High doses, ranging from 2.5 to 5 mg., are more often used for

shorter periods of time, particularly when the sedative action is desired.

Medical indications

Both *Rauwolfia* and reserpine will lower blood pressure in many hypertensive patients^(2, 3), and there is little difference between the whole root and the purified preparation⁽⁴⁾. Bradycardia precedes any pronounced lowering of blood pressure and indicates that the therapeutic effect is being reached. Besides a sense of well-being and freedom from tenseness, objective changes in the form of improvement of the electrocardiogram, decrease in cardiac size, and decrease in angina and symptoms of failure have been reported^(3a). The tranquilizing effect, one of the primary objectives in prescribing this drug for hypertension, is tolerated by most patients. Some, however, are made more uncomfortable by it^(3a). It would appear that these patients cannot accept or are unable to tolerate medically induced "tranquility." The combination of other hypotensive drugs with reserpine lowers the blood pressure further than might be expected with either alone. This is particularly true of hydralazine (Apresoline)^(3b, 5), although how this synergistic action comes about has not been studied.

Patients who have had head injuries or brain operations often need to be sedated without masking important and perhaps changing neurologic signs. Reserpine seems to fulfill this need because it controls irritative phenomena of the central nervous system without producing any other acute neurologic changes, even though large doses are usually required. An additional advantage appears to be the relative freedom from post-traumatic headache following recovery⁽⁶⁾.

The tranquility produced by reserpine is of value in some dermatologic conditions, especially those in which the emotions are thought to play a large part, for example, neurodermatitis, anogenital pruritus, and atopic dermatitis. About two thirds of such patients are improved when reserpine is

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added to the program. In only one specific condition, hyperhidrosis, can moderate improvement be expected in almost all cases. Most of these patients are improved in one or two weeks, where previous treatments have been ineffective⁽⁷⁾.

Side effects

Serious reactions related to reserpine administration were reported in 1955^(3a, 4, 8). There is now no doubt that depression is a frequent side effect, the risk of which must be carefully considered in each patient. From 0.9^(8b) to 1.7 per cent⁽⁴⁾ of patients taking the drug experience depression and accompanying anxiety and agitation. Withdrawal of the drug is sometimes enough to reverse this serious turn of events, but analeptics, prolonged psychotherapy, and electroshock therapy are necessary in most cases. Some patients have committed suicide. The onset of depression, though occasionally abrupt, as a rule is insidious, and is often suggested by increasing nervousness, insomnia and "blueness."⁽⁸⁾ Although these patients may not have overt emotional illness at the time therapy is initiated, many give a history of previous depression or other psychiatric disorder. Such a history constitutes a major contraindication to the use of reserpine. Similarly, patients who have chronic brain disease, whether degenerative or traumatic, should be observed carefully for the development of depressive reactions^(3a). The risk attending the use of reserpine in these states is in contrast to its effectiveness in acute brain damage previously mentioned.

The potential danger of giving electroconvulsive treatment to patients on reserpine recently has been reported⁽⁹⁾. A prolonged shock-like state may develop, and has caused death. No explanation for these catastrophic events has been advanced. Individual susceptibility cannot be predicted as yet, and on the basis of present experience it seems best to postpone electroshock therapy until at least seven days after reserpine has been stopped. This period is required for destruction and excretion of any reserpine in the body.

There are at least two drugs with which it is unwise to combine reserpine. Diphenylhydantoin (Dilantin) is competitively inhibited by reserpine. Although in combination with reserpine, many other anti-convulsant

drugs require large doses to be effective, none is inhibited to the same extent as diphenylhydantoin⁽¹⁰⁾. Reserpine employed in the treatment of psychotic patients with convulsive disorders has improved only about 5 per cent of the patients, and a definite increase in the number of seizures during the first six weeks has been observed. Beyond that time, seizures do not increase in frequency even though reserpine is continued⁽¹¹⁾.

In rats, simultaneous administration of reserpine and morphine reduces the pain threshold. More morphine is necessary to produce equivalent analgesia with reserpine than without it⁽¹²⁾. Where possible, the combination of these two drugs should be avoided.

In some patients, a Parkinson-like state is observed when large doses of reserpine are employed for prolonged periods. Discontinuation of the drug or a reduction in dosage usually reverses this condition. The mechanism involved has not been determined with certainty⁽¹³⁾.

In most series of patients treated with reserpine, a small number must stop the drug because of minor side effects. These rarely occur until treatment has continued for at least two months⁽¹⁴⁾. Familiar and frequent side effects such as nasal congestion, "light-headedness," loose stools, and unpleasant dreams are annoying but not dangerous. Hypotension is not usually severe enough to warrant stopping the drug. Other effects reported less frequently are decreased libido and weight gain. The latter has usually been ascribed to an increased appetite, although another explanation has been proposed.

Hypertensive patients with no previous congestive heart failure were observed to gain weight on small doses of reserpine. The amount of fluid retained and the severity of failure were observed to increase when the drug was administered and to improve when it was withheld⁽¹⁵⁾. Although the mechanism is unknown, it is suggested that a water- and possibly a sodium-retaining factor are present to account for the increased fluid and failure⁽¹⁶⁾. This effect is difficult to reconcile with the objective improvement in the cardiac status described above. It seems possible that reserpine lowers blood pressure and improves cardiovascular function despite fluid retention in some patients,

while in others the cardiovascular function remains unchanged and the added fluid is enough to precipitate failure.

Chlorpromazine

Dosage

Daily amounts of 10 to 100 mg. of chlorpromazine given orally are regarded as small or average doses, but the same amounts given parenterally exert a greater effect. Large oral dosages are those in excess of 100 mg. per day.

Medical indications

Nausea and vomiting are usually decreased by chlorpromazine. It has been of most value in the nausea and vomiting which accompany uremia of any cause,⁽¹⁷⁾ radiation sickness⁽¹⁸⁾, nitrogen mustard therapy⁽¹⁸⁾, and gastroenteritis^(18b). The simple nausea and vomiting associated with early pregnancy and the postoperative nausea and vomiting due to anesthetic agents are also benefited^(18b). Since vomiting due to intestinal obstruction may be prevented by chlorpromazine^(18b), it is imperative that a correct diagnosis be established prior to its use so that important diagnostic symptoms will not be masked.

Potential of narcotic drugs is now an established property of chlorpromazine⁽¹⁹⁾. Narcotic requirements in patients with cancer may be reduced by as much as one-half, enabling the patients to speak of their pain more objectively. The improved analgesia may be due to an altered reaction to the painful sensory stimulus. In cancer patients, progressively larger doses of chlorpromazine usually become necessary, but this may represent increased pain from advancing cancer rather than tolerance to the drug.

Patients addicted to narcotics have been withdrawn satisfactorily under chlorpromazine treatment⁽²⁰⁾. This may be done abruptly by withdrawing the narcotic and giving parenteral injections of chlorpromazine for two or three days, then gradually decreasing oral doses. On this regimen, patients usually have good appetites, are free from agitation, insomnia, vomiting and diarrhea, and do not demand narcotics. This method appears to have advantages over methadone substitution, and deserves further clinical trial.

Hiccoughs may be successfully treated with chlorpromazine. Intravenous administration has given considerable relief in the majority of patients who have been unre-

sponsive to the usual methods⁽²¹⁾, although some observers feel that oral administration is as effective and has fewer side effects⁽²²⁾.

In acute tetanus, large doses of chlorpromazine by continuous intravenous infusion will reduce the tetanic episodes to a manageable number which do not induce exhaustion. It is apparently better than the usual treatment consisting of barbituates and muscle relaxants or light anesthesia and curare, and is associated with fewer nursing problems and medical complications⁽²³⁾.

Severe neurodermatitis, particularly in older persons, may often improve when chlorpromazine is combined with other treatments which previously were only partially successful⁽²⁴⁾. Though exacerbations may occur during its administration, they are neither as severe nor as prolonged. An anti-pruritic effect has been noted in patients with uremia^(17a).

Side effects

Of the more important side effects, jaundice is the most publicized. A survey of four countries shows an incidence ranging from 0.003 per cent in France to 3 per cent in this country⁽²⁵⁾. The reason for this discrepancy is not entirely apparent, but it may be related to concurrent epidemics of infectious hepatitis in some of the patient populations⁽²⁶⁾ or to the route of administration of the drug. Parenteral use is said not to be associated with jaundice⁽²⁷⁾. If hepatic tests are not performed, it is impossible to say with certainty whether the jaundice is due to one of the usual viruses or to chlorpromazine.

Several interesting clinical features regarding chlorpromazine jaundice have been observed. A low grade fever between the fifth and thirteenth days of treatment may alert the physician to the probable imminence of jaundice⁽²⁶⁾. This fever may be the only indication of incipient jaundice, but it may also be accompanied by "grippe-like" symptoms⁽²⁸⁾. Once these symptoms occur, the serum alkaline phosphatase is frequently elevated and may be the next indication of clinical jaundice. If the alkaline phosphatase is abnormal or jaundice develops, chlorpromazine should be stopped. In the presence of chlorpromazine hepatitis, the liver function tests show the pattern of obstructive jaundice—that is, elevated alkaline phosphatase and bilirubin with relatively normal

hepatocellular function tests. When prolonged jaundice of this type is encountered, the problem of distinguishing between surgically obstructive and chlorpromazine-induced jaundice will arise. In a few cases eosinophilia is associated with the chlorpromazine jaundice, and may be useful in making this distinction⁽²⁸⁾. Rarely, a patient will remain jaundiced for seven months or more, apparently without sustaining permanent damage⁽²⁸⁾. It has not been definitely determined whether antecedent liver disease predisposes to this complication, but in view of the present uncertainty, it probably is best to withhold chlorpromazine in the presence of any known liver disease. If after five weeks of treatment no complications have arisen, they are unlikely to do so, and the drug may be continued more or less indefinitely⁽²⁵⁾.

Blood dyscrasias, mainly agranulocytosis, are sometimes associated with chlorpromazine. Of an estimated four million persons who have received chlorpromazine, about 1 in 50,000 to 1 in 100,000 have developed agranulocytosis. The A.M.A. Committee on Pharmacy and Chemistry has located 45 such cases, of which 17 were fatal. All in whom this side effect was discovered early recovered when the medication was stopped⁽¹⁾.

Skin conditions may occur in those receiving or handling the drug. In the former case, an urticarial reaction is the usual type, but morbilliform eruptions may also occur during the fourth week of therapy and usually subside whether or not treatment is continued⁽²⁶⁾. When medical personnel handle the parenteral preparation, they may manifest contact dermatitis even though this drug is not a strong skin sensitizer⁽²⁹⁾.

Like reserpine, chlorpromazine in larger doses for prolonged periods may produce a Parkinson-like syndrome^(25, 26, 30). Withdrawal or reduction of dosage and treatment as for Parkinsonism usually reverse this effect. For reasons that are obscure, this complication, like jaundice, is reported more frequently in the United States than in Europe.

Patients taking chlorpromazine should be warned that its sedative effects are increased when added to those of alcohol, and excessive drowsiness may occur. This is of particular importance when patients are driving automobiles or in other circumstances in which full attention is necessary⁽³¹⁾.

Minor side effects occur primarily in the cardiovascular system. A lowered blood pressure associated with tachycardia is a frequent finding. Rarely is this of great consequence, although patients may occasionally require intensive treatment⁽³²⁾. Hypertensive patients may be expected to have greater falls in blood pressure⁽³³⁾. Bed rest following its parenteral use helps prevent the subjective weakness, light-headedness, and syncope which might otherwise follow. The drowsiness which often occurs with smaller doses of the drug usually abates or disappears after the first seven days. Small amounts of dextro-amphetamine (Dexedrine) may counteract this effect⁽³³⁾. About one fifth of the patients taking chlorpromazine complain of a bitter, foul taste and a dry mouth^(26, 33). Galactorrhea is a rare but troublesome complication⁽³⁴⁾.

Several million patients have received chlorpromazine now, and the whole problem of side reactions, although of great importance, may have been emphasized excessively⁽²⁸⁾. The recent introduction of a similar preparation (promazine), said to be less toxic, may further reduce the few side effects now present with chlorpromazine.

Azacyclonol (Frenquel)

Azacyclonol is a gamma isomer of pipradrol hydrochloride (Meratran). Unlike its parent compound it is not a central excitant, but rather an antagonist of the stimulating effect produced by other drugs, particularly hallucinogenic agents⁽³⁵⁾. The psychoses that are produced by LSD-25 and by mescaline on an experimental basis can be blocked by azacyclonol⁽³⁶⁾.

Dosage

When employed in acute situations, 100 mg. of azacyclonol is administered intravenously, and a dose of 20 to 40 mg. of the oral preparation is then repeated every three to six hours for several days. Experience in less acute conditions has not been sufficient to determine the optimum dose range.

Indications

This drug has been variably and unpredictably successful in treating the hallucinations experienced in schizophrenia. However, in the so-called postoperative confusional states seen in elderly orthopedic or urologic patients, azacyclonol seems to be very effective. Often the pre-morbid mental state is attained within 24 hours after the

intravenous administration of the drug, and patients are continued on the oral preparation for another week. Symptoms apparently do not recur⁽³⁷⁾.

Patients suffering from acute alcoholic hallucinosis benefit remarkably from azacyclonol. Within 30 minutes to four hours after the intravenous administration of the drug, hallucinations, tremor, and agitation have subsided and the patient is approaching a manageable state⁽³⁵⁾. This may well prove to be its most important medical use.

Side effects and contraindications

Azacyclonol in therapeutic doses has not yet produced any reported side effects.

Summary

The therapeutic and toxic effects of tranquilizing drugs are reviewed from a general medical point of view.

Reserpine treatment in hypertension, acute brain injury, and certain dermatologic conditions is discussed. Depression and a Parkinson-like state are the common major side effects. Electroconvulsive therapy, Dilantin, and morphine are contraindicated with reserpine. Minor side effects are also mentioned.

Chlorpromazine is helpful in reducing the nausea and vomiting due to uremia, radiation therapy, nitrogen mustard therapy, gastroenteritis, early pregnancy, and anesthetics. It is also useful in the potentiation of narcotics and in narcotic addiction as well as in hiccoughs, tetanus, and neurodermatitis. Major side effects are jaundice and a Parkinson-like state. Blood dyscrasia is rare. Minor side effects are discussed.

Azacyclonol (Frenquel) is useful in post-operative confusional states and in acute hallucinosis. No toxic effects from this drug have been reported.

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Effects of Tranquilizing Drugs on Reticular System Activity in Man

A Preliminary Report

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The behavioral effects of the tranquilizing drugs are well known. Many papers have appeared in the literature to document the changes produced by these drugs. Although the neurophysiologic changes brought about by chlorpromazine have been studied in animals, to date little work has appeared concerning the changes of cerebral electroactivity in man.

The animal experiments with chlorpromazine have been adequately reviewed by Courvoisier⁽¹⁾. Of the many changes produced in central nervous system activity, those affecting the activity of the reticular system have been of particular interest. Summarized, they are: (1) diminution of the sensitivity of the reticular system to afferent sensory or nociceptive impulses, and (2) suppression of the activating effects of circulating adrenaline. These properties are manifested by depression of activity within the reticular system itself when auditory

and sensory stimuli as well as electrical stimuli to the hypothalamus were used to elicit arousal responses⁽²⁾. This was correlated with a change in cortical activity.

Morruzi and Magoun⁽³⁾ have shown in the cat that the normal electrical activity of the brain is replaced by low voltage fast activity if the reticular system of the animal is stimulated. The responses thus obtained are indistinguishable from those seen in electroencephalograms on human beings and animals when the eyes are opened, a sudden loud sound is made, or tactile and nociceptive stimuli are applied. More recently Bonvallet and Dell⁽⁴⁾ have demonstrated a similar response in the cat to circulating adrenaline. This humoral arousal response is similar to that elicited by sensory stimulation: it is characterized by a change in the electroencephalographic pattern with its characteristic 8 to 12 per second alpha rhythm to one of low voltage fast activity.

Recently in studying a large series of patients receiving chlorpromazine, Szatmari⁽⁵⁾ has pointed out that a 50 mg. dose of the drug given intravenously produces the following changes in the electroencephalogram:

Read before the Section on Neurology and Psychiatry, Medical Society of the State of North Carolina, Pinehurst, May 1, 1956.

From the Psychiatric Service, Veterans Administration Hospital, Durham, North Carolina.

*The promazine used in this study was generously furnished by the Wyeth Laboratories, Inc., Philadelphia, Pa.

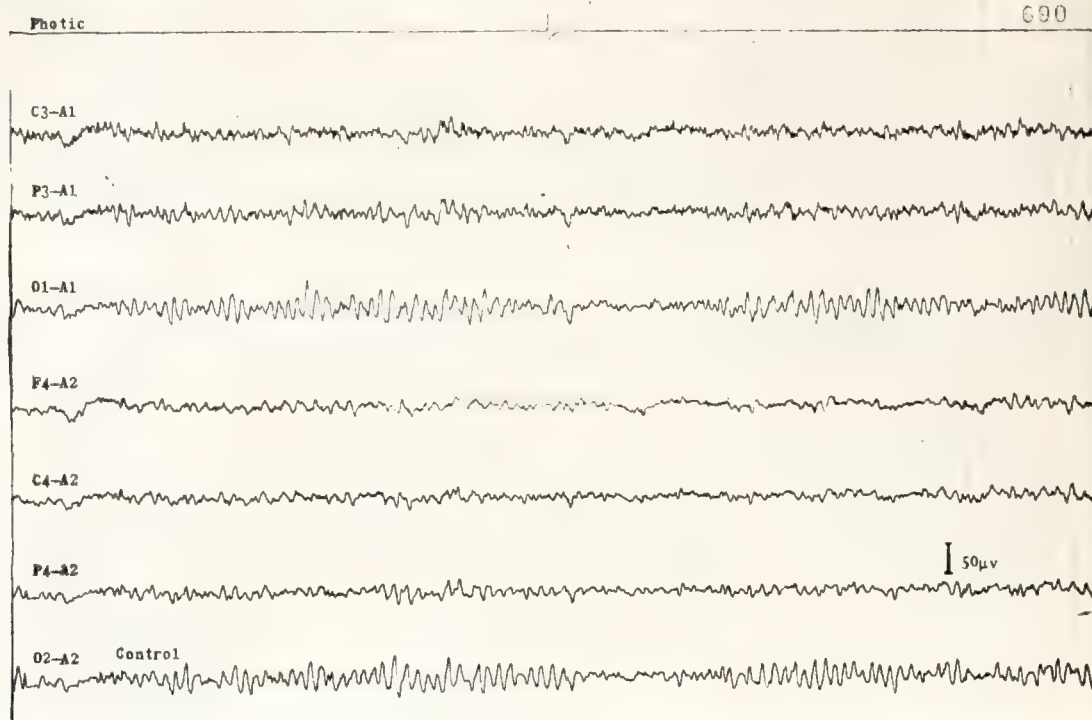


Figure 1

1. Marked relaxation and disappearance of muscle artefact due to relaxation of muscle tension
2. Decrease of the alpha frequency of $1\frac{1}{2}$ per second with a 30 per cent increase in voltage
3. Increase in the temporal and parietal 5 to 6 per second activity
4. Drowsiness or light sleep patterns
5. In epileptics, increased sensitivity to hyperventilation

From these observations and observations on patients receiving the drug orally, he felt that there was an increased synchronism and normalization of the electroencephalogram, and that this might indicate a change in reticular system activity. Shagass⁽⁶⁾ has also observed a more normalized electroencephalogram after the administration of chlorpromazine.

Because of these observations on animals and the recent work on human beings, it was felt that a systematic study of human reticular system activity should be carried out, because this system is one of the few that is readily accessible to study in man by electroencephalography.

Method

Twenty patients with anxiety and depres-

sive reactions of varying degrees of severity were selected for study from the psychiatric service of the Veterans Administration Hospital, Durham. One sociopathic personality was included in the series. Control records were obtained prior to administration of the drug. The first experimental record was made after the patient had been taking the drug for four days or longer. Ten patients received chlorpromazine, 6 meprobamate, and 4 promazine. Three patients of the promazine group received the drug intravenously in doses varying from 75 to 200 mg.

Recordings were done on a Model III D Grass electroencephalograph. Standard electrode placements were used.

Photic arousal responses were elicited by the use of single flashes from a Grass Model PS1 photic stimulator, sound responses by a loud clap of the hands, and tactile responses by stroking the hand heavily with a coarse test tube brush. Nociceptive responses were elicited by a sharp pin prick.

The records were examined for changes in the basic patterns of the electroencephalogram, and for changes in the duration and latency of arousal responses as elicited by the four methods.

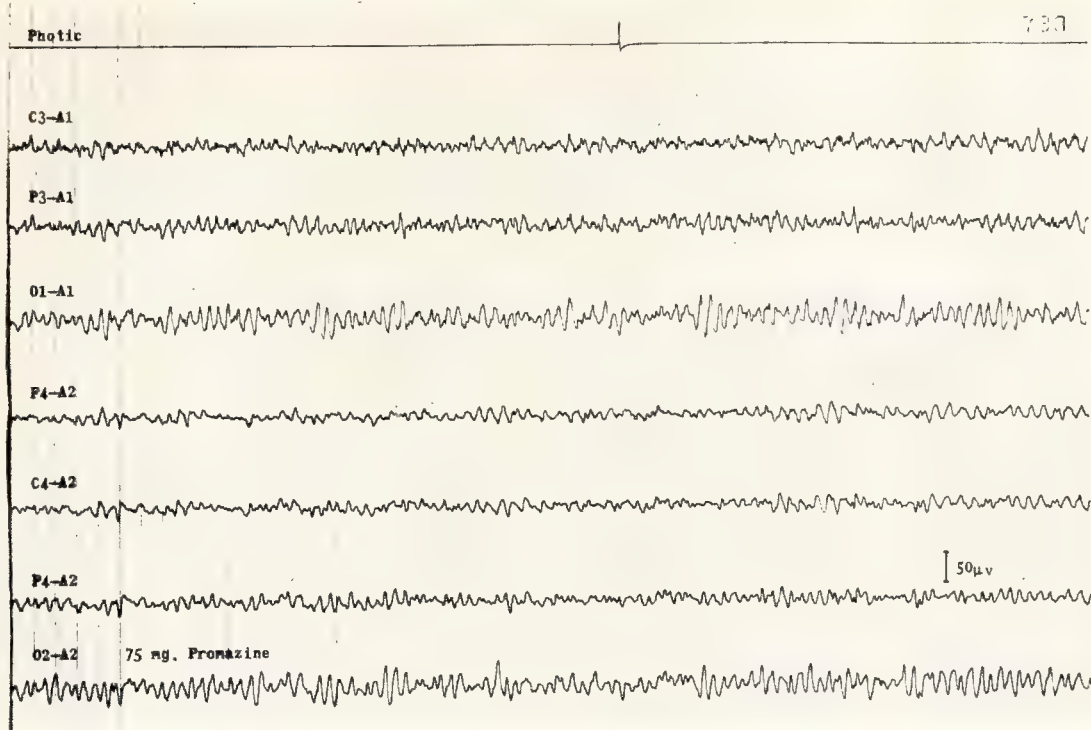


Figure 2

Results

In none of the patients were changes in the basic patterns of the electroencephalogram observed. The parieto-occipital alpha rhythm was unchanged in frequency or voltage. Careful scrutiny was given to the frontal and temporal regions for changes in fast activity. Contrary to the effects of medication with barbiturates, none was seen with these medications.

Those patients receiving oral medication showed no change in arousal responses. The average duration and latency of the responses were the same regardless of the medication and dosage. Surprisingly enough, however, it was observed that with the *intravenous* administration of promazine, arousal responses were markedly reduced in duration and at times were nearly absent. This was especially true of responses to both sound and photic stimuli.

Comment

Although much attention has been focused on the effects of the tranquilizing drugs on the reticular system, it would seem from these studies that therapeutic doses of the tranquilizing drugs given orally (200 to 500 mg. of chlorpromazine and promazine

daily, and 1600 mg. of meprobamate) have little effect on the function of the reticular system when the usual methods of eliciting responses in the electroencephalogram are followed. The striking lack of change in these responses, in contrast to the sometimes dramatic improvement of clinical symptoms, is difficult to explain on the basis of decreased reticular activity to nonhumoral activating stimuli.

It is generally agreed that the activity of the ascending reticular activating system is most classically manifested by the arousal responses to various stimuli. This is reflected in the desynchronization of the cortical activity. It would therefore seem likely that, if the major action of the tranquilizing drugs is to reduce the sensitivity of the reticular system to sensory stimuli, some change in this activity would be manifested in both the duration and latency of the arousal response. This does not occur with oral medication, but does with intravenously administered promazine. The rather striking reduction of arousal responses, sometimes to an almost minimal level, is strong presumptive evidence of some effect on reticular system activity. We are at a loss to explain the discrepancy

between the findings in patients receiving the drug orally and those receiving it intravenously. It seems likely that promazine does have a somewhat selective effect on reticular system activity in contrast to the barbiturates, which produce a more diffuse effect involving the cortical as well as the subcortical activity.

Although other authors^(6, 7) state that a heightened synchronism of the records follows the administration of chlorpromazine, our records taken after oral medication do not corroborate this finding. Careful attention was paid to the frequency and voltage of the basic alpha rhythm but no significant changes were noted. Furthermore, the slow activity of the parietal and temporal regions was not altered significantly.

Summary

1. The effect of chlorpromazine, promazine, and meprobamate on arousal responses elicited by sensory stimulation was studied in 20 patients.

2. No changes in basic electroencephalographic patterns were observed.

3. The presence, duration, and latency of arousal responses in human beings were not altered by the tranquilizing agents studied when they were administered orally.

4. Arousal responses were markedly reduced in duration when promazine was administered intravenously.

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Discussion

Dr. David W. Abse (Durham): Are there any question or comments?

Dr. Fred Langner (Pine Bluff): I would like to ask Dr. Martin about some of the toxic reactions to Equanil. We assumed that it was wholly harmless until one of our patients suddenly acquired a boiled lobster appearance and broke out in a total body rash which was a little worse on unexposed areas but also occurred on exposed areas. Another patient manifested an allergic type of rhinitis accompanied by considerable sneezing every time she resumed taking the drug.

Dr. Martin: Equanil was not included in this series because there did not seem to be enough material in the literature to warrant a discussion. The toxic reaction does not surprise me. New drugs often produce side-effects which are in some cases serious.

Dr. Abse: Will Dr. Langner tell us how much of the drug his patients were taking?

Dr. Langner: The patient who was sneezing was a doctor's wife who liked to vary her dosage to suit her fancy. She would stop it altogether at certain intervals, then resume a regular dosage, usually less than that customarily prescribed, and give it up again when the rhinitis recurred. The patient with dermatitis initially took one tablet four times daily. She then had an upsetting experience at home and doubled the dose as a consequence, taking an anti-emetic drug along with it. There was no change in the reaction: the macular rash developed in each instance, receding in about three days after the drug was withdrawn.

Dr. Thomas W. Farmer (Chapel Hill): I would like to hear Dr. Wilson or others discuss some of the clinical applications and results of these drugs.

Dr. Wilson: One point that should be stressed is that often the results are incongruous. Some advertisers would have you believe that the drugs are good for anything from falling hair to ingrowing toenails. Those of us who have studied the effects on large groups of patients, however, find that they have certain uses which are fairly clearly indicated. My experience has not led me to have much faith in reserpine. I have had 4 or 5 patients who, while taking it, would fall in a dead faint from hypotension every time they got out of bed. Each of us has preferences determined by our own personal experience.

I would say that the majority of these drugs have some uses, although Equanil seems to me to be the least useful. Certainly, chlorpromazine, promazine, and reserpine have been helpful in the short-term treatment of acutely disturbed patients whose illnesses ordinarily would have been short term anyway. The new drug, promazine, can be given intravenously, in doses of 400 to 500 mg. daily, to patients with marked hypertension. On occasion it has caused some patients to go into shock. It is less irritating and it can easily be given

intramuscularly without producing the big knots and irritated areas in muscles which are associated with chlorpromazine. Moreover, it probably has less toxic effect.

Promazine is wonderfully effective in the treatment of deliriums tremens. Patients are usually back on their feet within 48 hours after taking one fairly large injection, followed by oral doses.

Another point to be stressed is the difficulty of evaluating any drug in the presence of other methods of treatment. If a patient is receiving electric shock and three different drugs at the same time, it is difficult to say which agent produced the results. My opinion is that these drugs all have their uses, that some are better than others, and that one's use of them is determined by his own experience and preference.

Dr. Leslie B. Hohman (Durham): I think a word of warning is in order. Reserpine is a dangerous drug from the standpoint of precipitating depressions in hypersensitive patients. At least 12 of our patients at Duke have been thrown into depression by reserpine. It is our impression now that if the drug is stopped promptly, before symptoms are very far advanced, the depression can be arrested.

Dr. Wilson: I would like to comment briefly on the photosensitive dermatitis associated with chlorpromazine therapy. Persons taking Thorazine may go out in the sun on a warm day and come in looking like a boiled lobster and be uncomfortable for many hours thereafter. Even aspirin occasionally produces some side effects in certain people. We will doubtless encounter such side effects as dermatitis, liver damage, and other toxic manifestations in using these drugs. One can only assess the value of the drug in each case and decide whether it is great enough to outweigh the risk. So far as I know, Equanil has not produced a toxic effect in our use of it. I therefore consider it one of the most innocuous drugs therapeutically.

Dr. Amos N. Johnson (Garland): In the area where I practice are some 50 or more other doctors who treat all sorts of disorders with Equanil. Whereas they get excellent results with it in nervous conditions, I have never used it successfully on a patient who was ill enough to be referred to a psychiatrist.

Dr. Abse: My experience has been similar, as I think probably has Dr. Wilson's. The patients who are referred to us from the psychiatric inpatient service are usually too ill to respond to such drugs as Equanil. The few with mild anxiety states whom I have observed do seem to respond with less tension.

Dr. Dobson (Durham): I would like to learn more about the toxic effects, particularly agranulocytosis. In treating outpatients, how often should we study the blood picture, and at what stage of the medication may we assume that we are safe from agranulocytosis? I am also interested in the hyperpyrexia associated with the use of chlorpromazine. Finally, at what stage of treatment with

Serpasil or rauwolfia is one safe from the danger of a major depression?

Dr. Martin: With regard to agranulocytosis, the question of blood tests arises whether the incidence is 1 in 50 cases or 1 in 100,000 cases. Is one justified in making repeated blood tests on all patients who are being kept on the drug? I do not have an answer to the problem. An A.M.A. report on this drug stated that the patients whose cases are detected early usually recover. When patients who are closely followed begin to complain of bleeding gums or other symptoms, this would seem to be the obvious time to discontinue the drug and make blood counts. This is an economic as well as a medical problem, and I do not know the answer.

As to the pyrexia, do you want to know whether this is a good indication of the onset of jaundice?

Dr. Dobson: Yes; and also, what is the frequency of this complication? Since chlorpromazine has been available, I have had 2 patients who began running a temperature of 103 F. after taking the drug four or five days.

Dr. Martin: It has been said that low grade pyrexia is the sign to watch for, though temperatures up to 105 F. have been recorded, usually within the first 14 days. After three to five weeks, I think, this complication is unlikely; it is during the first few weeks that one should be on the alert for signs of jaundice. Upper respiratory symptoms are also premonitory of the disease.

As for depression, I don't think it is ever safe to relax one's observation of a patient who is taking reserpine. This complication has been reported in dozens of patients who were receiving as little as 0.1 mg. a day. The drug houses say to reduce the daily dosage from 1.0 to 0.1 mg., but I am not sure that even this safeguard is sufficient. I think the history can be of the greatest help in avoiding this problem—that is, a history of previous brain damage, degenerative or traumatic.

Dr. Hohman: I had one patient with hyperpyrexia which we first thought was due to an infection of the throat. When we stopped the drug, the throat symptoms also subsided. When we resumed it, the patient's temperature rose to 106 F. within 12 hours. I would guess that the depression following the use of reserpine for hypertension in doses as low as 0.1 mg. are most likely to occur in patients with a history of depression.

Dr. John Chapin (Benson): What about the use of chlorpromazine in obstetrics? Is there any danger to the baby or the mother during labor?

Dr. Martin: I do not know. I think it is useful in the treatment of the persistent nausea and vomiting of early pregnancy, but that is a different matter.

Dr. Wilson: I think it would be relatively unsafe if used in conjunction with morphine or any other narcotic. Certainly, it has a potent effect in potentiating other drugs.

The Care of the Patient With a Fractured Pelvis

IRA H. RAPP, M.D.

CHARLOTTE

The pelvis is a bony oval strategically placed between the trunk and the lower extremities, protecting the pelvic viscera and so situated as to make it highly vulnerable to both direct and indirect trauma.

Anatomy

The pelvic oval consists of two innominate bones connected in front at the symphysis pubis and articulating behind with the triangular-shaped sacrum at the sacroiliac joints. The innominate bone is made up of three parts: The largest, the ilium, forms the crest of the pelvis and terminates in front at the readily palpable anterior iliac spine, and behind at the less obvious but still palpable posterior iliac spine. The body, or thickened portion, of the ilium constitutes the upper and main weight-bearing portion of the acetabulum, or hip socket. The pubis, or second part of the innominate bone, forms by its superior ramus the anterior portion of the acetabulum. The body of the pubis connects with the opposite pubic body to form the subcutaneous and easily traumatized symphysis pubis. The inferior pubic ramus joins the body with the ascending ramus of the ischium, which is the third part of the innominate bone. The body of the ischium forms the posterior inferior portion of the acetabulum, and its prominent tuberosity supports the weight of the trunk in the sitting position. The sacrum, made up of five fused segments, is wedged between the two innominate bones by the almost immobile and strongly supported sacroiliac joints.

The pelvis performs a variety of functions. It protects the abdominal and pelvic viscera, it forms the boundary of the birth canal in women, it supports the weight of the trunk and transmits body weight to the extremities through the hip joints. The pelvis also affords attachment for the trunk and leg muscles. In order to preserve these pelvic functions, adequate treatment should be rendered to all pelvic fractures.

Classification of Fractures

Many classifications of pelvic fractures have been proposed, some of which are needlessly complicated. The one suggested here is based in general on the severity of the injury (table 1).

Table 1

Fractures of the Pelvis

- I. Simple fractures
 - Undisplaced fractures
 - Avulsion fractures
- II. Complex fractures
- III. Complicated fractures
 - Displaced fractures with complication (urinary tract; pelvic-abdominal, or thoracic viscera; head and extremity injuries)

Simple fractures: For the most part these fractures are undisplaced, are usually single, rarely more, and demand treatment by bed rest or supportive weight-bearing (fig. 1). Also included in this category are fractures associated with avulsion injuries caused by violent contraction—for example, the avulsion of the anterior-inferior iliac spine by the rectus femoris, or the avulsion of part of the ischial tuberosity by contracting hamstring tendons.

Complex fractures: Complex fractures include displaced pelvic fractures, and multiple fractures, with or without involvement of the pelvic articulations—that is, the symphysis pubis, sacroiliac joints, or

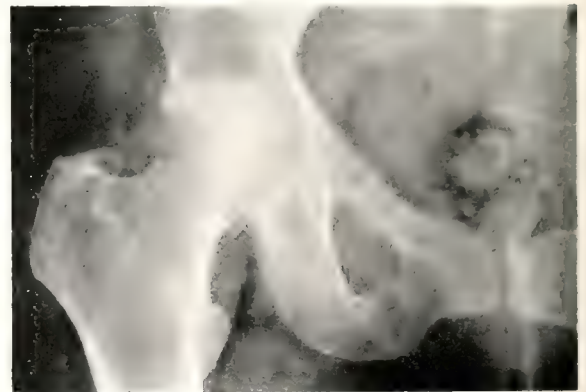


Figure 1. Roentgenogram showing the injury of a 45 year old clerical worker who sustained a fracture of the ascending ramus of the pubis in a fall. She was treated with diathermy for three weeks and lost no time from work.

Read in the postgraduate instructional course, Section on Trauma, Medical Society of the State of North Carolina, Pinehurst, April 30, 1956.

From the Charlotte Orthopedic Clinic, Charlotte.

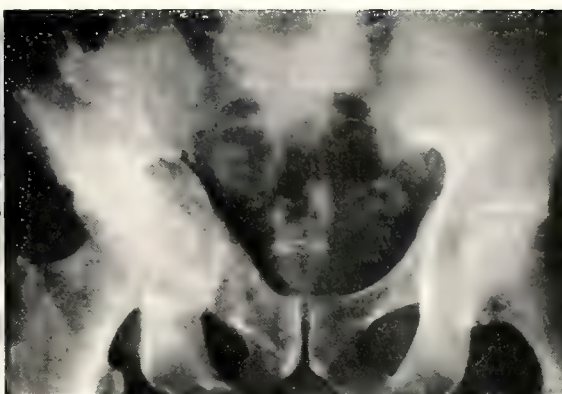
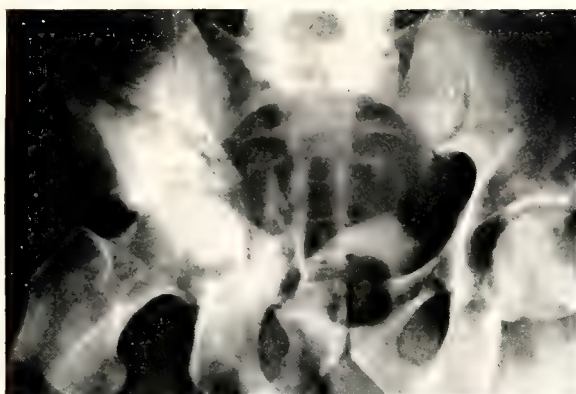


Figure 2. Roentgenogram of a 62 year old man who fell from a roof, fracturing the pelvis and simultaneously dislocating the head of the femur through the acetabulum. The dislocation of the hip was reduced by means of traction through the

greater trochanter. He was on crutches for nine months, after which he returned to his job as a carpenter.

Figure 3. Roentgenogram of the pelvis nine months after treatment of fracture (See fig. 2).



Figure 4. A 41 year old woman was involved in an automobile accident. She sustained multiple fractures of the anterior as well as the posterior rim of the pelvis, including a diastasis of the right sacro-iliac joint and posterior dislocation of the right hip. She was initially treated for shock and urologic complications before the fractures were manually reduced and a spica cast was applied.

Figure 5. Roentgenogram taken two years later (fig. 4). Although the pelvic fractures have healed, the patient is obliged to walk with a cane because of symptomatic traumatic arthritis of the right hip.

acetabulum (figs. 2 and 3).

Complicated fractures: The most serious pelvic fractures are those complicated by vessel, nerve or visceral injury (figs. 4 and 5). Pelvic fractures may be produced by indirect injuries whereby force is transmitted through the lower extremities, as, for example, in falls from a great height or in the now more familiar dashboard injury. Avulsion fractures, as noted previously, may be produced by violent muscular contraction.

Mainly, however, pelvic fractures are sustained by direct injury. The crushing force affects first the weakest portion of the

pelvic oval, causing a break of the anterior rim (a fracture of the pubic or ischial rami.) As the force continues, the stronger posterior rim is broken, the fracture extending through the ilium to or involving the sacro-iliac joint or extending into the sacrum. The displacement of the fractures is proportional to the force of injury, and widely separated anterior rim fragments suggest posterior rim involvement, visceral complications, or both.

Simple Fractures

A simple undisplaced fracture of the pelvis may be suggested by a history of a minor fall or direct injury to the pelvis, with signs of tenderness over the site of fracture or on pelvic compression. The patient will frequently direct attention to the hip especially when pain on weight-

bearing is a prominent feature. General manipulation of the hip joint, however, reveals joint motions to be intact, and local pelvic tenderness will reveal the true nature of the injury.

Complex Fractures

Displaced fractures of the pelvis are suspected with a history of more serious pelvic injury. There may be evidence of local abrasions or lacerations. The patient is usually lying on his back and resists all active or passive movement. Asymmetry of pelvic landmarks such as depression of the iliac crest, abnormal prominence of either anterior or posterior iliac spine, depression between the symphysis pubis, widening of the perineum, and discrepancy of leg length, indicates bony displacement. The nature and amount of displacement is, however, not always immediately apparent on clinical examination. The patient with a serious pelvic injury presents a picture of profound shock as a result of allied injuries to the head and spine, abdominal and thoracic viscera, urinary tract, and extremities. This situation demands the utmost caution in transporting the patient on a rigid or semi-rigid support from the scene of injury to the hospital, where definitive measures may be directed toward combating shock or treating the more serious complicating injuries.

Complicated Fractures

Complications resulting from the pelvic fractures take precedence in treatment over the fractures themselves. Rupture of the major vessel, although a rare complication, may require ligation. Laceration of the vagina and rectum are unusual, and can be detected by digital examination. Sciatic nerve paralysis is not infrequently associated with fractures of the acetabulum intruding into the sciatic notch, and its detection directs attention to the early replacement of fracture fragments by manipulation or open reduction.

Most frequent and important complications of pelvic fractures are injuries to the urinary bladder and urethra. The incidence of this complication has variously been estimated at 10 per cent, and it cannot be excluded until the patient has voided or a specimen of clear urine been removed by catheterization. A suspicion of lower urinary tract damage must be entertained when there is a complaint of lower abdominal or

groin pain, especially when x-ray examination demonstrates displaced fractures of the pubic rami or diastasis of the pubic symphysis. Intraperitoneal extravasation of urine associated with a rupture of the bladder produces signs of peritoneal irritation—a condition which is most likely caused by violence to the anterior wall of the distended bladder. The bladder at its anterior or neck portion may also be lacerated by a bone fragment, producing an extraperitoneal extravasation of urine with pain and fullness in the suprapubic area. Injuries to the urethra producing signs and symptoms of extraperitoneal extravasation of urine are suggested by difficulty in voiding and inability to pass a rubber catheter into the bladder. Urinary tract complications take immediate precedence over treatment of the pelvic fracture.

Treatment

In general, the patient with a pelvic fracture can more easily and comfortably be treated on a hospital bed with fracture boards around which is erected a Balkan frame. From the frame can be suspended a ring or pulley whereby the patient can lift himself to and from the bedpan, aid in changing of bed linen, and generally assist himself. From the frame can also be suspended a pelvic sling to support the pelvis and various types of apparatus to provide traction of the extremities.

The Balkan frame is commercially available from various surgical houses, but one can be constructed from lumber and easily erected in the home. The pelvic sling used in the hospital is likewise readily made from muslin cloth measuring 6 feet by 22 inches. Straps applied to the lower 10 inches of the sling make possible the use of the bedpan by turning back the flaps.

Simple undisplaced fractures of the pelvis frequently demand only bed rest. A fracture of the prominent crest of the ilium is produced by a direct or crushing force. The fragments are not, as a rule, grossly displaced, by virtue of the numerous opposing muscular attachments. Bed rest may be necessary for several days during the acute phase; thereafter weight-bearing with crutches is permitted for an additional two to three weeks. Isolated fractures of the pubic or ischial rami are produced by direct injury and likewise respond to bed rest during the period when weight-bearing is painful. Bed rest may be made more com-

fortable by a pillow placed under the knees, and where muscle spasm is a prominent feature, traction may be applied to the extremity for a few days.

Unrecognized minimally displaced fractures generally do no harm, as a further displacement of fragments is unusual. Avulsion fractures of the anterior-superior or anterior-inferior spine of the ilium produced by unusual effort, as in running and jumping, cause sudden pain but rarely require open reduction and suture. With rest, these fragments become re-attached at a slightly lower level and produce no permanent disability. Occasionally an avulsion fracture of the ischium affected by the contracting hamstring tendons will, before epiphyseal fusion is complete, produce a state of non-union. Continued bony growth forms a bone mass which occasionally makes sitting and walking painful and may necessitate removal. Isolated fractures of the sacrum commonly result from a sitting fall. They are readily treatable by adhesive strapping and a low back support worn for a period of several weeks. The sitting position during the acute phase can be made more comfortable by the use of a rubber air ring. This fracture, although frequently suggested by local tenderness, cannot always be detected by a routine pelvic film.

Displaced fractures of the pelvis not involving the sacro-iliac joints or posterior rim are treated by bed rest for several weeks until acute symptoms have subsided, after which gradual resumption of weight-bearing with crutches may be permitted. Occasionally skin traction applied to a leg is helpful in relieving muscle spasm by preventing painful leg movements. In instances where there is separation of anterior pelvic rim fragments, or in diastasis of the symphysis pubis, the overhead pelvic suspension hammock is indicated for gradual compression of the displacement.

Anatomic reposition of the fragments is not necessarily sought after, and continued displacement is not an indication for open reduction and wiring. On the other hand, the physician should be satisfied that the anterior rim fracture is not associated with a fracture through, or dislocation of, the sacro-iliac joints, a problem which demands a longer period of relief from weight-bearing and very occasionally a fusion for persistent pain and instability.

By far the most serious bony injury to

the pelvic girdle is the fracture or dislocation of the anterior as well as the posterior pelvic rim. This type of trauma is frequently complicated by visceral injuries not only of the pelvis but frequently of the abdomen, chest, and head as well. Treatment, therefore, demands assistance from the urologist, abdominal or thoracic surgeon, or the neurosurgeon, with the complicating injury taking precedence over the pelvic fracture in treatment. The displacing force responsible for the pelvic injury is directed in an anterior-posterior direction, fracturing the public rami or causing a diastasis of the symphysis pubis. As the force continues to act, the posterior wing of the ilium is fractured or the sacro-iliac joint disrupted and displaced, usually in a backward and upward direction, carrying with it the lower extremity. This results in a relative shortening and external rotational deformity.

Only after the allied injury is completely assayed and treated is attention directed toward the treatment of the pelvic fracture. The patient is then turned on the less injured or unaffected side; and on exertion of pressure in a downward and forward direction opposite to that of the disrupting force, the fragments can usually be felt to reduce. When x-ray films confirm the adequacy of reduction, a snug-fitting spica cast incorporating both thighs is applied while the patient remains in the lateral recumbent position. Immobilization is maintained for several months until periodic roentgen examinations reveal satisfactory consolidation and weight-bearing with assistance is permitted.

Fractures of the acetabulum are important both because of the relative frequency with which they interfere with the mobility of the hip joint and also because of the tendency toward sciatic nerve paralysis caused by obstruction of the sciatic notch by fragments. Direct injuries involving the greater trochanter of the femur produce central dislocation of the hip through the acetabulum, whereas indirect violence transmitted through the femur disrupts the posterior acetabular rim, the fragments of which not infrequently involve the sciatic nerve. Treatment in both types of injury is directed toward reducing the dislocation. In the former, if the femoral head can be satisfactorily reduced, the acetabular fragments follow by virtue

of the attachment of the joint capsule and ligamentum teres. In the latter, if the reduction of the hip joint is stable and there is no remaining sciatic nerve pressure, immobilization may be continued with a spica cast; otherwise open reduction and replacement of the fragments under direct visualized are indicated.

Summary

The treatment of fractures of the anterior, non-weight supporting area (ischial

and pubic rami) of the pelvic oval necessitates rest, assisted weight-bearing during the stage of pain and muscle spasm, or both, whereas treatment of fractures of the weight-supporting posterior rim (the area behind the acetabulum) demands more prolonged immobilization until bony union is complete in order to prevent instability and painful weight-bearing. It is essential, first, to save the patient's life, second, to treat the complicating injury, and finally to attend the fractured pelvis.

A Testament to the Changing Pattern of Tuberculosis

W. M. PECK, M.D.*

MCCAIN

The pattern of tuberculosis control changes constantly: it changes in response to new information and needs, altered economy, and predominant personalities and fads. Sometimes it flounders in complacency; at other times it changes with almost chaotic flurry. Always guiding and determining this pattern, however, are three institutions: the health department, the private physician, and the sanatorium, each performing its specialized function.

Since tuberculosis, as a contagious disease, is essentially a public health problem, the health department must occupy the position of over-all responsibility and initiative, the private physician must guide the attitude of the patient and his community and plead the right of the individual; and the sanatorium, with its clinical and laboratory resources for research, must elaborate new methods of treatment and new concepts to support a changing and progressive program. Yet it is true that sanatorium physicians, in their more or less monastic seclusion, speak mainly to other sanatorium physicians, while I presume that public health physicians, guilty of the same sin, may speak chiefly to other public health physicians. It does seem rather unusual, though most wholesome, for us to meet together in this manner today to compare information, motives, and ideas. Since we

are now passing through a period of chaotic change, with aspects that are both heartening and hazardous, it is important that we maintain the closest possible communication with one another in order to work wisely, and with adaptability, through this unusual period of turbulence.

Changing Concepts

Up to now it has been customary to assert as a dictum that the basic philosophy of treatment has changed little, and that drug therapy and surgery are only serviceable adjuncts to an established and time-proven system. But now we must recognize that the basic philosophy itself is changing and that this change constitutes the most radical departure in the pattern of tuberculosis control.

The traditional concept, which is now giving way, was starkly realistic. It was based on the uncertainty of pre-drug therapy and the fact that tuberculosis was essentially a relapsing disease. It aimed at bringing the patient into tentative equilibrium with his disease, and at maintaining that precarious balance by sheltered, restricted living.

It was harsh treatment. When a patient entered the sanatorium there was forced on him a sudden break in the continuity of his life. Life plans were stripped from him and reconstituted along lines of limited attainment and responsibility. The usual values were inverted; ambition became evil and laziness a virtue. He was taught the doctrine of submission and introduced to

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the numbing fear of relapse through such slogans as "Once tuberculous, always tuberculous." Some patients survived their illness to acquire success or even greatness, but many succumbed to the trivial life of semi-invalidism. Thus was the "cure" in days when there was no justifiable alternative.

Since then, however—in a matter of a very few years—a group of drugs that are nearly specific has appeared, changing the course and behavior of tuberculosis to such an extent that it has little in common with the disease we knew only 10 years ago. Such fundamental aspects as its pathology, bacteriology, and perhaps even epidemiology, have been altered by drug action. The significance of these changes we have been slow to recognize and accept because of our innate distrust of the disease and its record of relapse. But now we are beginning to see that with optimal treatment recovery is nearly predictable, and that the relapse rate—if we can project short-term results—has dropped almost to the point of removing tuberculosis from the category of a relapsing disease.

This is a difficult adjustment for all of us to make, but obviously we who deal with tuberculosis must "catch up" with this new type of disease and exploit its changes for the benefit of the patients and the control program. The period of hospitalization has already been shortened considerably and, as we gather confidence, probably can be shortened more—perhaps much more. Patients now return to work within a few months of discharge, and usually to their previous employment. The need for treatment in tuberculosis, then, no longer should be regarded as an overwhelming personal tragedy, and the period of sanatorium care, though intense and highly specialized, should be regarded merely as an episode which, in itself, does not disrupt nor materially alter the continuity of one's life.

These optimistic remarks, of course, cannot apply to all who enter the sanatorium. Belated diagnosis and delayed admission still carry some patients past the point of possible return to adequate function. Some still die from tuberculosis; others survive as pulmonary cripples to whom we can offer only prolonged custodial care.

Let us turn now to the treatment which has justified such a reversal of concept,

Achievement of Dormancy

The goal of drug treatment, ideally, would be to sterilize the lesion of all tubercle bacilli, with reversion of the tuberculin reaction; but under usual clinical conditions, with our available drugs, this goal cannot be fully realized. Fortunately there is a tangible alternative which falls just short of the ideal. This is based on the faculty of drugs, especially of isoniazid, to destroy those bacilli which are in active phase of multiplication and to depress the metabolic activities of the remaining organisms to a point of inertness, comparable perhaps to hibernation—a unique and definite vegetative state.

Bacteriologists have shown that many of these bacilli cannot be induced to grow on culture media, whereas others will grow with difficulty only after many months of incubation or special stimulation. In this dormant state tubercle bacilli continue to elaborate sufficient tuberculo-proteins to maintain a positive tuberculin reaction, but not enough to cause progressive disease. Rapid resolution of pneumonic disease and frequent cavity closure occur in consequence of this depressed state of the parasite; and we may postulate that those factors—factors which unfortunately permitted disease to develop in the first place—may have the opportunity to rectify themselves.

Isoniazid is by far our best drug, and isoniazid and para-aminosalicylic acid seem to be our most satisfactory combination. Drug therapy, therefore, is usually initiated with these two agents, and with almost predictable success. When they fail—as they do rarely under favorable circumstances and frequently under conditions of compromise—when they fail, we have lost much of our sureness, and treatment henceforth becomes difficult, specialized, and less certain. Now we must grope with the problems of drug resistance, synergism, and toxicity, as we seek successful combinations of streptomycin, cycloserine, pyrazinamide or viomycin. Sometimes the surgeon must remove refractory areas of disease—the persistent cavity or the caseous mass—before sputum can be converted.

Our first objective is to achieve the dormant state of the bacilli, and our second is to maintain them in this state. Fortunately it appears that dormancy can be maintained by the rather simple expedient of continu-

ing drug therapy. Isoniazid alone appears to be adequate for this purpose, and ideal, since it is pleasant to take and exceedingly low in toxicity and cost. We feel rather strongly that continued dormancy can be further assured by surgical removal of those areas that are subject to reactivation, such as residual cavities or areas of unresolved disease, which may be relatively inaccessible to the blood stream and hence to drug effect.

(These meager references to surgery are quite inadequate to define the robust role that the surgeon exercises in our daily sanatorium practice and in our thinking.)

The Importance of Continuous Treatment

The tragedy of drug therapy is the ever present possibility of interruption or compromise in the early course of treatment. The initial exposure to drugs finds the organisms particularly vulnerable, and intense, supervised drug therapy at this time will cause conversion of sputum in about 90 per cent of the patients during the first four months.

On the other hand, if initial therapy is inadequate or interrupted, it may have the deplorable effect of merely altering the host-parasite relationship sufficiently to produce a remarkable degree of chronicity, with the persistence of active, smouldering disease, which may neither improve nor worsen under further treatment. We usually have about 40 such patients in our institution, many of whom are in the prison division. For the most part they are poor, inadequate, defeated creatures, with long histories of repeated "short bursts" of drug therapy. Characteristically, their shop-worn lesions have practically ceased to respond to drugs, even to new ones such as cycloserine; yet under flagrant abuse they seldom get worse. Prisoners escape and run for hours or days through the swamps, go on the bum, or work at heavy construction for months before being apprehended and returned to us, still hale and hearty, but with sputum that is unalterably positive.

This kind of disease is the stigma of erratic drug treatment, and may be produced in the well meaning, law-abiding citizen as well as the criminal. There is a heavy responsibility on all of us lest, inadvertently by compromise or misdirection, we encourage another to join this forlorn and hopeless crowd. We must never forget that

the period of early treatment is a critical one, and the difference between adequate treatment and almost adequate treatment may be relatively slight.

Sanatorium and Home Care

The control of the tuberculous patient extends from the point of diagnosis, or suspicion of diagnosis, throughout his life, or as long as relapse is a reasonable possibility. How shall this prolonged period of control be segmented? How much time should be spent under control in a sanatorium and how much under control at home? We believe, with a few exceptions, that adult patients with pulmonary tuberculosis should start treatment in a sanatorium and should remain there until the first phase of treatment has been accomplished—that is, until all evidence of bacillary activity has been suppressed and dormancy of the bacillus presumably established. Once this milestone is achieved, continued care is much less exacting and considerable latitude in physical activity is permissible; even indiscretions are remarkably well tolerated. The average patient should return home at this time for convalescence under the protection of drugs, usually isoniazid alone. Usually he may return to full-time work in three to six months after discharge.

How long should prophylactic isoniazid be maintained after discharge? We don't know; we must feel our way on this question, but at present we suggest that it be continued for one year in some cases, two years in others, and indefinitely in a few. During the last several years we have discharged many hundreds of patients on continued isoniazid therapy and know of not a single relapse. This is a record which we cannot hope to maintain—no doubt statistics will some time overtake us. Even so, we recognize that we now possess a method which can control much of the threat of relapse.

Need for Cooperation

The sanatorium has been criticized for embarking unilaterally on this policy of shortened hospital stay and earlier convalescence at home without giving local health departments prior warning and the opportunity to prepare for it. I would point out that the convalescent period itself has also been shortened and no longer demands very much in the way of supervision. For instance, more physical activity is permitted,

and simple isoniazid therapy involves little of the inconvenience of pneumothorax or pneumoperitoneum treatment which is replacing in this post-sanatorium period.

Nevertheless the criticism itself is valid and should, in fact, be made even broader. Considering the overlapping nature of our work, I would say that opportunities for discussions of policy between sanatorium and health department personnel, and opportunities for consultation, except remotely by way of chest films, are quite inadequate. I am reminded of the old Extension Division of the Sanatorium which used to send physicians to conduct chest clinics in various health departments; and it is with considerable nostalgia—since this way my first contact with the sanatorium system—that I recall the splendid teamwork between the health department, the sanatorium, and the private physician that was associated with these clinics. In recent times a number of health departments have found a new need for chest clinics and have reestablished them on their own initiative. Perhaps these clinics can be extended, and perhaps the sanatorium can find means of providing

some assistance. Certainly there is a need for this kind of cooperation in the community itself: the need to maintain enthusiasm in case-finding in spite of a falling death rate; to help in conducting mass surveys; to coordinate intra- and extra-sanatorium phases of treatment; to control the attitudes of the patient and his family, and to prevent ill advised adventures in home treatment.

Conclusion

About 55 million persons in the United States have a positive tuberculin reaction, about 5 per cent of whom may be expected to have active tuberculosis. The problem, then, is still a vast one, and will remain with us for many, many years. During these years, however, new methods and new drugs will continue to appear and influence the pattern of control. This is as it should be. Let us maintain an eagerness and delight in each advance, a willingness to explore. Let us circumspectly avoid suspicion and the taunt of self-interested motives or vested interest as we move together through years of trial and conquest.

* * *

Role of the Health Department in Home Treatment of Tuberculosis

O. DAVID GARVIN, M.D., M.P.H.*

CHAPEL HILL

I am certain that all physicians recognize the burden placed on the health department or the agency responsible for the home treatment of tuberculosis. When we keep before us the fact that we are dealing with people of all ages and of varying financial means, with no two persons reacting alike, we can better appreciate some of the reasons for the problems. It is well to remember that North Carolina is a rural state. Since a large proportion of our citizens do not live in cities or large urban areas and are therefore not easily reached by mass educational programs, it is sometimes most difficult to reach those who need our services most.

Under date of March 29, 1956 the *News and Observer* carried an article stating that \$650,000 of the money appropriated for tuberculosis will revert to the State General Fund because four county sanatoria will not receive money appropriated by the Legislature since two had closed and two were operating at their own expense, and because there were vacant beds in the state sanatoria. It was further reported that on February 9, the state sanatoria had 1,702 patients and about 400 vacant beds. This to me poses the question, "Where are the patients if they aren't in the state sanatoria or the two county sanatoria?" At home! Other pertinent questions are: What care are they getting? Who is supervising the treatment? How close is the supervision? Is the treatment adequate? Who is paying for it? What educational program is being carried on? What rehabili-

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tation is provided, and will these cases break down and become active at a later date?

Current Problems

Incidence

The number of new cases of tuberculosis reported to the State Health Department each year remains rather constant, averaging about 2,500 per year for the past five years. In 1950, 3,653 new cases were reported, as compared with 1,950 in 1955. This variation may be due to many factors: fewer cases, less emphasis on case-finding, and a more indirect approach; or cases may even be masked or unreported. The problems of diagnosis in older people in the absence of positive sputum smears and cultures is well known.

As compared with the relatively constant number of cases reported each year, we have a declining death rate that has been significant. "Death rates or deaths recorded statistically as tuberculosis are no indication of tuberculosis incidence."

Age and chronicity

There is a shift in the incidence of tuberculosis to the older age group, which further complicates the handling of cases. Some even refer to tuberculosis as "a disease of old men." Another question may be: What chronic disease problems will result from the drug therapy of tuberculosis? Dr. Robert V. Cohen has said: "Indeed, a statistician reviewing the rising graphs of age-at-death of the general population, and age-at-death due to tuberculosis, remarked that if the cases continued in their present direction, patients with tuberculosis would soon live longer than the general population."

This statement shows clearly the problem of local supervision and the care of the tuberculous patient in the home. With the treatment available at present, a great many of the elderly chronic patients with active tuberculosis can be kept alive almost indefinitely, but not cured. Their sputum consistently or intermittently contain viable tuberculosis bacilli. Add to this the fact that they may be taking drugs at home and what do you have? As someone has said, a shifting of responsibility for tuberculosis treatment and care from the state to the counties, and the counties may be least able to carry the burden.

All the foregoing statements leads to the

conclusion that health departments have a very important part in the home care and treatment of tuberculosis patients. In most of our counties the health department is the only agency available to deal with the problem. I do not include the welfare departments, because in most instances their work is different, relating mostly to social and economic problems.

Sample Study

Let me cite Person County as an example: a small but progressive county with limited funds, cooperative doctors, cooperative people (25,000), good political leadership, and a major tuberculosis problem. A description of this problem is the best way I know of showing the role of the health department in case-finding, diagnosis, treatment, education, rehabilitation, and supervision of tuberculosis patients.

From 1947 through 1955 we reported 15 white and 19 Negro deaths from tuberculosis. During this time 150 cases of tuberculosis were reported. As of January 1, 1956, we knew of 14 patients in state sanatoria, 2 in VA hospitals, and 81 at home, for a total of 97; this figure does not take into account cases considered as arrested or inactive for more than five years. During 1955 we supervised or administered treatment in the home to 26 patients, all of whom had a family doctor who worked closely with us. On January 1, 1956, 22 persons were receiving home treatment for tuberculosis; one is under 1 year of age. Some of these were receiving drugs after having been discharged from the sanatorium, while others were under outpatient clinic supervision and still others were on drugs prescribed by us because they wouldn't go to the sanatoria.

During 1955, 11 of the 19 new cases reported were classified as active, 2 as minimal, 5 moderately advanced, 3 far advanced, and 1 primary. The age distribution of the 19 patients was: 5 over 60 years of age, including 1 aged 75 who had meningitis and is now at home on drugs; 5 ranging from 40 to 60 years of age; 6 between 30 and 40; 1, 14 years of age, and 2 less than 6 years of age. Of this total, 3 are in the sanatorium, 6 have been in the sanatorium, 7 are taking drugs at home, and 9 are under observation, receiving frequent x-ray and sputum examinations. The 11 patients with active cases had 55 close contacts, all of

whom were either tuberculin-tested or x-rayed. In addition we had 299 contacts under supervision. Of these, we x-rayed 137 and did tuberculin tests on 69. In all we x-rayed 4,484 persons, discovered 59 suspects, and were able to complete evaluation of 48, diagnosing 5 cases as active tuberculosis. In addition we classed as suspects 90 persons with nontuberculous chest conditions, and 298 cardiovascular disease suspects. These suspects were either followed in our clinics or referred to their family physician or outpatient departments.

Since January 1, 15 cases of tuberculosis have been reported to the state. The age distribution is: 1 less than 1 year; 3, 4 to 10 years; 1, 10 to 15 years; 1, 25 years; 2 30 to 39 years; 2, 43 years; and 4 over 70 years. All the more than 70 year old patients have active, advanced disease.

Of these 15 cases, all but one was discovered or diagnosed through the efforts of the Health Department. As of April 23, the disposition of these cases is as follows: 5 are on drugs and at home, 3 are in sanatoria, 1 has been in and out of the sanatorium, 2 are awaiting sanatorium admission, and 4 are under observation and tentatively classified as inactive.

These statistics give some idea about our problem and the role we play in case-finding, treatment, and care of tuberculosis patients.

The local medical society has on many occasions endorsed the program and always cooperates in the diagnosis, supervision and treatment of suspects and cases.

The Health and Welfare Departments are the only official agencies dealing with this problem in our county. While the volunteer agencies have no paid workers, nevertheless they wholeheartedly cooperate with us and give generously of their time and funds.

Discussion

Dr. Edward G. McGavran (Chapel Hill): Will Dr. Peck expand his reasons for believing that drug therapy should be started in the hospital?

Dr. Peck: A few years ago we had a waiting list of more than 100, which kept patients at home for about one year before they could be admitted to the sanatorium. Nearly all the drugs that we use today were available then; so we started a series of patients on therapy at home. About a year later they were admitted to the sanatorium. The results of this trial were quite interesting.

Of this group of about 165 patients, some 36

died while awaiting admission. The remaining 129 were admitted. Of those who had been under treatment for a year, only a fraction had actually taken the drugs regularly. In only one half of these had the sputum been converted to negative in one year. In the sanatorium this should have been done in 90 per cent of the cases within four months.

In half of the remaining cases, the sputum was converted to negative within two months after sanatorium supervision was started. This shows the fallacy of trying to keep patients on long-term therapy without hospital supervision.

Dr. Willis tells of a short-term study of penicillin therapy in a large group of home patients with streptococcal throat infection. Only one-third of the patients remained on the medication for one week. The majority stopped taking the drug at the end of about four days.

Dr. McGavran: You are saying, then, that the chief advantage of sanatorium care is the continuation of therapy under supervision, whereas treatment is frequently discontinued in the home?

Dr. Peck: I think that is the most objective factor we can point to. We also believe that bed rest, diet, escape from social problems, and other factors are also important, though impossible to evaluate statistically. The average sanatorium patient is underprivileged. He comes from a substandard home and from a low economic, intellectual, and social stratum. If treatment is left in his own hands, it will be carried out erratically.

Dr. McGavran: Does home care necessarily mean a complete lack of supervision?

Dr. Peck: The possibility of finding a physician who has the time to give adequate supervision to home patients is remote. We have compromised with regard to some of our highly intelligent employees who had been heavily indoctrinated in the sanatorium—and we failed. There is something about the sanatorium routine which is vastly important.

On the other hand, when our patients return to the outpatient clinic after discharge, the story is different. When asked if they take the drugs regularly, they answer yes. Their whole security is tied in with taking the pills three times a day.

Dr. McKay: There is something intangible that the patients get from each other, that they can't get from the doctor, and that is lacking in the home.

Dr. H. S. Willis (Chapel Hill): I would like to comment further on the futility of starting the therapy at home. If the drugs can be properly given under careful supervision, 75 per cent of the patients will become negative in six months, on an average. But even under the most favorable circumstances a span of several months is required before the sputum is safely negative, and during this period at home the patient's family is in a precarious situation. We are in danger of forgetting that this disease is, after all, an infection,

with a well known bleeding potential, and personal grief and tragedy follow in the wake of each new case.

It seems to me that there is every justification for treating these patients in the sanatorium for several months at least, during which they receive the benefit of group education and a point of view which enables them to maintain their therapy much more regularly when they return home.

Dr. Peck: I should have developed further one point concerning the group who received their initial treatment at home. During this period of home care, 5 cases of tuberculosis developed in children in these homes. Two had meningitis and died; 1 had pericarditis, and the others had primary lesions.

Dr. McGavran: All public health men recognize the desirability of sanatorium care for all the reasons given. But what about the patient who won't go to the sanatorium even when beds are available? Under what conditions should home care be administered? What are the problems, the safeguards, and the limitations? What factors are most important? The first consideration, apparently, is some means of supervising so that drug therapy is adequate and continuous. How fine is the line between adequate and inadequate? Are we likely to err on the side of giving too much drug?

Dr. Peck: We should not be dogmatic on that subject. Each case should be individualized. We should strive for clinics at the county level with

qualified personnel to make the decision. Certainly many patients—older people and children—might be better treated at home if adequate safeguards and supervision could be obtained. Individualization is necessary, and many factors should be considered—personality, total home situation, and so forth.

From the floor: How often would you say home patients should be seen?

Dr. Peck: As a rule, they are not seen oftener than once a month.

From the floor: Might not satisfactory home supervision be more expensive than sanatorium care?

Dr. Peck: An extensive home care program is being conducted in New York City which I understand is quite expensive—probably a little less expensive than sanatorium treatment. Home supervision becomes grossly impractical when patients need to be seen oftener than once a week.

Dr. L. E. Kling (Washington): In Beaufort County we used home therapy as a desperate measure. In the three years prior to 1952, the number of deaths from tuberculosis per year was 14, 15, and 14, respectively. This was in a population of 40,000. We instituted treatment with PAS and streptomycin, and nurses saw the patients twice weekly. The effect was dramatic. The annual number of deaths for the next three years was 1, 2, and 3 respectively. Of course we welcome the opportunity of getting patients into the sanatorium earlier.

Chemoprophylaxis has been used primarily for four purposes: (1) to protect healthy individuals, either singly or in groups, against invasion by specific microorganisms; (2) to prevent secondary bacterial infection in people acutely ill with diseases for which the antimicrobial agents are not effective; (3) to reduce the risk of infection in patients with various types of chronic illness; and (4) to inhibit the spread of disease from areas of localized infection, or to prevent infection in general, in persons who have been subjected to accidental or surgical trauma. The degree of success has varied with the purpose for which prophylaxis has been applied; it has been highest when the prevention of specific infections has been attempted, and lowest when protection against infection in general has been its aim. In many instances, prophylactic measures have been applied only to single individuals; in others, they have been used on large groups. In many cases, chemoprophylaxis, whether effective or not, has resulted in no untoward reactions; in some, it has converted a benign, self-limited disease into a serious or even a life-threatening one.—Weinstein, L: The Chemoprophylaxis of Infection, *Ann. Int. Med.* 43:287 (Aug.) 1955.

Postoperative Oxygen Therapy

KENNETH SUGIOKA, M.D.

CHAPEL HILL

Any discussion of postoperative oxygen therapy should begin with those conditions for which it is useful.

Uses

Relief of hypoxia

The most common use of oxygen is for the relief of hypoxia. This condition has been classically divided into four types: 1) anoxic, 2) anemic, 3) stagnant, and 4) histotoxic. Perhaps a more useful classification would be that proposed by Saklad and others: 1) atmospheric, 2) tidal, 3) alveolar, 4) hemoglobic, 5) stagnant, 6) histotoxic, and 7) demand.

Atmospheric hypoxia occurs when the available oxygen in the atmosphere is reduced. Tidal hypoxia occurs if the bellows action of the lung is depressed as the result of drugs, trauma, or obstruction. Alveolar hypoxia is found wherever there is a marked decrease in functioning alveoli. This may be due to mechanical or other pathologic changes of the structures. Hemoglobic hypoxia is self-explanatory. Whenever the number of red cells available to carry sufficient oxygen to the tissues is reduced, hypoxia occurs. Stagnant hypoxia occurs whenever the circulation is decreased, a condition which may be due to any one of a number of causes such as shock. In histotoxic hypoxia the tissue cells cannot utilize the available oxygen because of a depression that is usually due to toxic drugs—classically cyanide poisoning. Demand hypoxia is a state of relative hypoxia wherein the ordinarily adequate supply of oxygen to the tissues becomes inadequate because of increased cell metabolism. This is seen in cases of high fever and hyperthyroidism.

Normally the human body inspires oxygen in a concentration of 20 per cent in the atmosphere. This results in a hemoglobin saturation of about 98 per cent in the arterial blood, and between 40 per cent and 50 per

cent in the venous blood. Arterial blood carries about 20 volumes per cent of oxygen, of which 19.7 volumes per cent is carried by oxyhemoglobin and 0.3 volumes per cent is carried in solution in the plasma. The oxygen content of the venous blood is about 14 volumes per cent, divided proportionately between hemoglobin and plasma.

One might wonder then, since arterial hemoglobin is already 98 per cent saturated, what could be achieved by increasing the saturation by only 2 per cent to 100 per cent with the use of pure oxygen. The answer to this question lies in the fact that, although the use of pure oxygen raises the oxygen-carrying capacity of hemoglobin by only 0.5 volumes per cent, the amount of oxygen dissolved in plasma increases from 0.3 to 1.7 volumes per cent. This then results in a total increase of 2.2 volumes per cent of oxygen, or an 11 per cent increase in the oxygen content of arterial blood. This, as one can see, is a significant increase, but probably even more important is the increased oxygen content of venous blood from 14 to about 19 volumes per cent—an increase of 40 per cent. This results in a much greater pressure of oxygen at the venous end of the capillaries, as well as the 11 per cent increase in pressure at the arterial end. The administration of high oxygen concentrations increases markedly the amount of oxygen available to tissues, even though the arterial saturation is raised very little.

Reduction of Abdominal Distention

Another use of oxygen therapy which has often been neglected is its efficacy in helping to reduce abdominal distention due to gas in the loops of the bowel. This does not imply that one can neglect the use of the usual measures such as tubes passed down to the affected area. Oxygen is useful, however, since, by lowering the normal nitrogen concentration of about 60 per cent in the lung to about 5 per cent by replacement with oxygen, the pressure gradient from the high nitrogen concentration of 60 per cent to 80 per cent in the bowel to the now low concentration of 5 per cent in the lung becomes very

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From the Department of Surgery (Anesthesiology), University of North Carolina School of Medicine, Chapel Hill.

Table 1
Methods of Administering Oxygen Therapy

Method	Flow Rate Liters/min. (Per Cent)	Concentration of Oxygen (Per Cent)	Accumulation of Carbon Dioxide	Advantages	Disadvantages
Nasopharyngeal	3-6	33-55	None	Simple, effective; useful for irrational patients	Irritating; proper placement important
Tents	6-15	20-40	1% if tent is airtight and flow low	Comfortable (new models)	Causes claustrophobia; demands high flow rate; must be airtight
Burgess open box or other open box methods	4-10	20-60	1% if flow rate is low	Simple, effective	Difficult to humidify; CO ₂ may accumulate
Croupettes, Isolettes	4-8	20-90	1% if flow rate is low	Temperature, humidity, and O ₂ concentration easily adjusted	May produce fairly high concentration of CO ₂
Intravenous	10-20 cc/min.	?	None		Usually causes desaturation of O ₂ because of pulmonary emboli
Masks					
O.E.M. or Barach	5-15	35-100	None	High concentration of O ₂ possible	Uncomfortable; useless for irrational patients; humidification difficult with Barach mask
B.L.B.	6-10	20-90	2 to 3% if flow rate is low	Humidification possible	Uncomfortable; CO ₂ accumulates easily
Scott (demand type)	Varies	20-100	None	Economical; high concentration of O ₂ possible	Impossible to humidify adequately; requires small amounts of negative pressure which may be harmful to some patients

Table 2
Humidification

Humidifier	Flow rate liters/min.	Room temp. (degrees)	Temperature of water in bottle (degrees)	Relative humidity of room (per cent)	Relative humidity delivered (per cent)
1. Sintered bronze in $\frac{1}{2}$ pint bottle	8	74	54	59	77
2. Same as No. 1	5	74	62	59	77
3. Same as No. 1 except bottle is heated	5	74	78	59	100
4. No humidifier	8	74	—	59	26
5. No humidifier	5	74	—	59	28
6. McKesson tent	7	80	—	56	49-78
7. Croupette and Isolette	5	80	—	56	100

marked. This leads to a gradual egress of the nitrogen in the bowel to the lung, where it is breathed out and replaced by oxygen. This then is the rationale of the treatment of abdominal distention by the use of oxygen. It may also apply to the treatment of subcutaneous emphysema.

Methods of Administration

The data shown in tables 1 and 2, which were compiled from various texts and articles and from work at the University of North Carolina School of Medicine, provide a comparison of the various methods of administering oxygen therapy.

The nasopharyngeal method of administering oxygen is probably the simplest, most effective, and most economical method. The pitfalls to be avoided with its use are too high a flow rate of oxygen, which will result in marked discomfort to the patient without substantially increasing the effective concentration; too low a flow rate; improper placement of the catheter, and too infrequent changing of the catheter without proper lubrication. The tip of the catheter should be at about the level of the uvula, usually the length from the alae of the nose to the tragus of the ear.

Oxygen tents are expensive to purchase and to maintain, and unless extreme care is taken to prevent leakage from the tent, it is very difficult to attain a concentration as high as 50 per cent. By making the tent more nearly leakproof, one runs the risk of raising the carbon dioxide content to dangerous levels. Both these factors could probably be avoided by markedly increasing the flow rate, perhaps to as high as 25 to 40 liters per

minute. At these rates, of course, the cost of oxygen will become a factor. One of the distinct advantages of modern tents in the summer is that they are usually comfortably cool.

The Burgess and other open box methods of oxygen administration have the advantage, especially in larger children, of maintaining a high concentration of oxygen without enclosure in a tent, thus avoiding feelings of claustrophobia.

Since Croupettes, Isolettes, and other incubator boxes cause dangerous accumulations of carbon dioxide with the usual flow rates of 4 to 8 liters per minute, higher flow rates (8 to 15 liters per minute) are recommended. There is probably very little danger of oxygen poisoning even when high flow rates are used, since the box is frequently opened for feedings, changing, and so forth. A possible exception to this generalization might be in the case of premature infants where a definite correlation between the increased incidence of retrolental fibroplasia and prolonged inhalation of air with a high oxygen content has been found. An oxygen analyzer, several of which are on the market and which are simple to use and are fairly inexpensive, is almost essential for proper oxygen therapy using the above methods of administration.

Intravenous methods of administering oxygen are quite controversial, but the work of several reliable investigators would seem to indicate that the oxygen saturation of the blood may actually be decreased, owing to small emboli in the lung capillaries, and a subsequent decrease in exposure of the blood to air in the alveoli. At present this method is not in use.

Masks appear to be used less and less fre-

quently, but where very high concentrations of oxygen are desired, they still constitute the method of choice. As previously noted, all the masks have some disadvantages, but probably the O.E.M. or Barach mask is the most desirable when this method is needed. By virtue of the one-way non-rebreathing valve, there is very little danger of carbon dioxide accumulation, and high concentra-

tions of humidified oxygen can be delivered fairly economically.

Conclusion

A complete dissertation on oxygen therapy, either on a theoretical or a mechanical basis, has not been attempted. Rather this is a brief summary of the pertinent facts which are necessary for the rational use of oxygen for various pathologic conditions.

The Supine Hypotensive Syndrome of Pregnancy

HAROLD M. SLUDER, M.D.

CHARLOTTE

The following case is illustrative of the hypotensive syndrome induced by the dorsal supine position and relieved by changing the patient to a sitting position.

Case Report

The patient was examined while lying on her back on a routine prenatal visit in the thirty-seventh week of her second pregnancy. Her blood pressure was 80 systolic, 50 diastolic, and she felt well. As the abdomen was being examined, it was noted that marked pallor had developed and she had become unconscious. Her eyes rolled upward and she had a transient convulsive seizure which lasted only a few seconds. The blood pressure was unobtainable and the pulse rapid and weak. She was lifted to a semi-sitting position and held thus for approximately three minutes, during which time she gradually regained consciousness and her blood pressure rose to 90 systolic, 60 diastolic. After vomiting, she complained only of headache and stated that she felt fairly well. She then volunteered the information that during the previous month she had been sleeping on two or three pillows since she "did not feel right" when lying flat on her back. She had never fainted.

The patient was 24 years old. Her last normal menstrual period had occurred on July 2, 1954, and her expected date of confinement was April 9, 1955. She was first examined in the sixth week of her present pregnancy. Except for a questionable history of malaria at the age of 14 years, her past history was negative. Her first pregnancy, six years previously, had been uncomplicated.

A complete general physical examination was negative except for mild superficial varicosities of the lower extremities.

The red blood cell count was 3,940,000, hemoglobin 77 per cent (11 Gm. per 100 cc.), white blood cell count 15,500, with a normal differential. A urinalysis was negative, as was a serologic test for syphilis.

The present pregnancy had been complicated by intermittent uterine bleeding during the first 12 weeks. The patient had been hospitalized during the seventh week and treated for threatened abortion. Following discharge from the hospital intermittent bleeding continued until the end of the twelfth week. By the twenty-third week of pregnancy rather marked vulvar and lower extremity varicosities had developed, requiring the use of elastic stockings. By the thirty-second week of pregnancy the vulvar varicosities had become extremely large and painful, necessitating frequent periods of rest.

Throughout the present pregnancy her blood pressure had ranged between 100 and 110 systolic, 60 diastolic, except one week prior to the episode of shock when it was 90 systolic, 60 diastolic.

Two weeks following the episode of shock the patient was admitted to the hospital with questionable ruptured membranes. Examination revealed a single term-size fetus in the vertex presentation, left occiput posterior position. The fetal heart rate was 140 per minute. The uterus was noticeably flaccid. The cervix was not dilated and the fetal head was at minus 3 station. Labor did not ensue and there was no further leakage of fluid. During this admission the patient consented

to a demonstration to the house staff of the effects of the supine position on her blood pressure. When she lay on her back with the head of the bed elevated 45 degrees, her blood pressure was at its normal level of 100 systolic, 60 diastolic. The head of the bed was then gradually lowered and blood pressure readings were taken. At approximately 20 degrees the blood pressure had fallen to 75 systolic, 50 diastolic, but there were no clinical signs or symptoms. At 15 degrees the blood pressure fell to 50 systolic, 0 diastolic, and pallor, air hunger and partial loss of consciousness developed. With the bed completely flat the patient's blood pressure could not be obtained and she was completely unconscious. The head of the bed was immediately elevated to the 45-degree position, following which the patient regained consciousness and her blood pressure returned to normal. These changes could be reproduced repeatedly simply by lowering the head of the bed. The application of tight elastic bandages to both lower extremities slightly delayed the development of shock, but did not prevent it. On one occasion during this admission the patient became faint while sitting in a chair talking with her husband. The nurse immediately put her to bed and found her blood pressure to be 50 systolic, 0 diastolic. She was propped up in bed and oxygen started, following which her pressure returned to 105 systolic, 60 diastolic. She admitted that she had been sitting in a somewhat slouchy position when she began to black out.

Since the membranes had not ruptured and the patient's condition was not considered favorable for induction, she was discharged. She was readmitted to the hospital three days later with definitely ruptured membranes, but not in labor. After 24 hours, labor was induced with intravenous Pitocin drip. Following a seven-hour labor she was delivered spontaneously of a normal 7 pound, 14 ounce male infant over a right mediolateral episiotomy under p u d e n d a l block anesthesia. During delivery, the patient was in a semi-sitting position with the head of the delivery table elevated and the stirrups in their lowest position. Except for moderate bleeding from the vulvar varicosities, the delivery was uncomplicated.

Immediately following repair of the episiotomy the table was leveled to the horizontal position. The patient's blood pressure was

stable at 130 systolic, 78 diastolic, and she was allowed to remain on her back. The postpartum course was entirely uncomplicated, and subsequent examinations during the past year have been negative.

Comment

The supine hypotensive syndrome of late pregnancy is a form of shock or circulatory collapse initiated or aggravated by the dorsal recumbent position, and can be relieved by changing the position. It is cured by delivery.

Varying degrees of blood pressure depression in patients in late pregnancy are noted by all obstetricians, and the complaint of discomfort when lying on the back is not uncommon. Only recently, however, has the syndrome received attention in the literature. McRoberts⁽¹⁾ reported 6 cases in 1951 and postulated that "in late pregnancy the uterus may obstruct the veins of the abdomen when the subject is in the strictly supine position, causing a rise in venous pressure caudally and a fall in pressure in the right auricle." DeRegende⁽²⁾, responding to the paper by McRoberts, mentioned cases which he had reported in the Brazilian literature and expressed his opinion "that the syndrome is dependent on a reflex produced by the stimulation of the nervous structures situated behind the uterus." Howard, Goodson and Mengert⁽³⁾ reported an interesting case in which abdominal pain was associated with the postural shock, leading to unnecessary laparotomy for suspected rupture of the uterus. Their observation of 2 cases within a period of a few days stimulated them to some interesting clinical and experimental studies. They found that 18 (11.2 per cent) of the next 160 consecutively examined patients at term showed a systolic blood pressure of 80 mm. of mercury or less, or a systolic blood pressure depression of 30 mm. of mercury when the patient was made to lie on her back for some time. Their experimental studies on dogs showed that faradic stimulation of the celiac ganglion or the lumbar sympathetic chain caused elevation rather than depression of the blood pressure. Occlusion of the vena cava below the renal veins in the nonpregnant dog resulted in no change in blood pressure, whereas in the pregnant bitch, especially during late pregnancy, there was a dramatic fall in blood pressure. Studies in pregnant and nonpreg-

nant women showed the femoral venous pressure to be elevated significantly only in the pregnant woman, and then only when she lies in the supine position. At cesarean section, the elevation of the uterus anteriorly lowered femoral venous pressure from 23.9 cm. of water to the normal non-pregnant level of 10.8 cm. of water.

It would appear, then, that this shock syndrome may be caused by compression of the inferior vena cava by the flaccid, near term, pregnant uterus, causing pooling of blood in the pelvis and lower extremities with resultant diminished blood flow to the right side of the heart and lungs. Its occurrence in only a relatively small number of patients may be due to anatomic variations of the anterior portion of the vertebral column, differences in flaccidity of the uterus, or to the presence of large pelvic, vulvar and lower extremity varicosities, providing an unusually large vascular bed for pooling of blood.

The clinical significance of this syndrome is that it should be considered in the differential diagnosis of shock occurring in the near-term pregnant patient without obvious cause.

Although no cases of fetal death attributable to this form of shock have been reported, it is not unreasonable to assume that it could occur if the shock persisted for sufficient time. Death from placental abruption following ligation of the inferior vena cava in one of the dogs in the experiments by Howard, Goodson and Mengert is interesting and perhaps warrants further studies to determine any possible relationship between compression of the vena cava and premature separation of the placenta.

Summary

A case exhibiting the supine hypotensive syndrome of late pregnancy is presented. The present concept of etiology, pathologic physiology, and clinical significance is discussed.

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1. McRoberts, W. A., Jr.: Postural Shock in Pregnancy. *Am. J. Obst. & Gynec.* 62:627-632 (Sept.) 1951.
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3. Howard, Ben K., Goodson, J. H., and Mengert, W. F.: Supine Hypotensive Syndrome in Late Pregnancy. *Obst. & Gynec.* 1:371-377 (April) 1953.

Deryl Hart, M.D.

In celebration of Dr. Hart's twenty-fifth anniversary as professor of surgery and chairman of the Department of Surgery of the Duke University School of Medicine, his former residents and members of his department with their wives gathered at the Hope Valley Country Club in Durham on October 20, 1955. Dr. W. C. Davison, dean of the School of Medicine since its founding in 1930, presented his portrait to the University on behalf of Dr. Hart's former residents. Dr. Clarence Gardner, his first resident, presented him a silver bowl. Their remarks follow:

* * *

REMARKS BY DR. DAVISON

It is a great pleasure for me to pay tribute to Deryl and Mary Hart on this occasion of the unveiling of Dr. Hart's portrait before the assemblage of his former residents.

His contributions to surgery have been many, not the least of which has been the establishment of the Duke Hospital and the Department of Surgery on a solid foundation and the training of so many younger leaders in surgery as are gathered here this evening. His statement that anything which helps Duke aids surgery, and vice versa, is amply proved by his and your careers.

I shall speak first of his determination and his ability to overcome adversity. As most of you know, his father died while he was in college. He took over the family farm, which is no mean feat, so that he could attend Emory, where he received not only a B.A. but also an M.A. degree. As at that time he was 6 feet 3 inches tall and scarcely weighed 100 pounds—or it may have been 120—the Army was not interested in him, and he entered the medical school and had to contend with the students' Army Training Corps under the pernicious

direction of one Ambrose McGee, who finally ended up as an allergist.

By the time Deryl had reached his junior year in medical school, he had completely made up his mind to become not only a surgeon, but one of the greatest surgeons. Everything was bent toward that goal. My first encounter with him came as he was prowling through the children's wards late at night looking over the patients. In fact, I think our first argument—and we have had many friendly ones since—started when I found him using the Harriet Lane elevator and leaving the door open so that the rest of us had to walk.

Deryl's next difficulty came when he had to live down his youth. One of our mutual friends told one of his patients not to go to Duke Hospital because Deryl was nothing but an intern. However, the friend, redeemed that slur—or it may have been a compliment—by sending his sister to Deryl within a few months for a difficult operation. He is now one of Deryl's and Duke's best supporters.

All of us here at Duke are likewise in his debt for operating upon us and our families. My wife and children will always be grateful to him, as will many thousands of people throughout the southeast.

Deryl's next difficulty came when Mary, just before they were married, announced that they would have six children, three boys and three girls. As you know, that immediately started Deryl on an active research program to find out something about sex in general, and boys and girls in particular. At any rate, they have six splendid children, three boys and three girls.

Deryl's sex research program has been of great value to my older son, Bill, as well as to Warner Wells. These two, after having innumerable daughters, appealed to Deryl for advice, followed it, and produced sons, thus adding themselves to Deryl's numerous admirers.

This research program also embarrassed me. At a dinner party in Guatemala, the lady on my left said: "I hear that you are from Duke and must know about Deryl Hart and sex. I read about him in the *Ladies' Home Journal*. I have six daughters and want a son." I don't know whether many of you can explain menstrual cycles and ovulation in Spanish, especially in a

Catholic country, but it is difficult. Fortunately, before I started the explanation, the lady on my right said: "I have been listening to your conversation, and have six sons, so tell me how to get a daughter." In one of my rare periods of inspiration, I suggested trading husbands. The idea was applauded, but I never knew whether it was successful.

Contributions to Surgery

Early in the days of Duke Hospital the mother of one of our friends had a post-operative infection, a common occurrence in most hospitals in this country although it was difficult to get surgeons to admit it. I remember my first student clinic, in fact my only student clinic in surgery, in which Dr. Halsted showed an infected hernia. As usual, I was one of six students, the other five gasping in horror that they had never heard of an infected wound at the Johns Hopkins Hospital. As I had just returned from the war and had seen many infected wounds treated by the Carrel-Dakin method, however, I was able to hold forth at great length, particularly as Dr. Halsted was not familiar with the details of the subject. As a result, I was offered a surgical internship but had sense enough never to return to a student surgical clinic, where my ignorance would have been discovered.

At any rate, because of this infected wound, Deryl started one of the most important subjects in surgery; namely, air sterilization, not only adding greatly to the safety of patients, but also enhancing the reputation of Duke Hospital.

The Private Diagnostic Clinic

One of Deryl's great contributions not only to Duke but also to many other medical schools and hospitals which are copying the idea was the organization of the Private Diagnostic Clinic, in association with the late Frederick M. Hanes and William F. Franck. As you know the clinical faculty are on full geographic time with the understanding that private practice shall not interfere with the main job of teaching, research, and the care of ward and outpatients. As Fred Hanes expressed it, however, in the 1933 Report to the President:

Private patients constitute the most serious problem which the School has to solve. They are inevitable, and their proper handling can do much to make friends for the school and Hospital. They must be treated, and well treated, or else we are neglecting our duty as

physicians and employees of Duke University. On the other hand, they are thoroughly demoralizing. They demand a large and undeterminable part of the teaching time. Progress in scientific medicine is almost impossible for the teacher who accepts private patients. Some more or less trivial research work is possible, but no sustained and important work can be done by a teacher so placed. Rare exceptions to these observations can be cited, but I am convinced of their essential truth. This being my belief, I strongly recommend that the medical staff be composed of two types of teachers: (a) geographic full-time men, such as we have now as senior teachers, and (b) the strictly whole-time man who has no obligations whatsoever to private patients.

To solve this problem, and to coordinate the diagnostic studies and give better care for the complicated conditions arising in the examination of private patients, Deryl, Fred Hanes, and Will Franck started the Private Diagnostic Clinic on September 15, 1931, in a corner of the present outpatient clinic. The members of the geographic full-time staff of Duke Hospital and School of Medicine do the professional work of the clinic, and have their offices in the new private patient wing of the hospital. The financial side of the clinic is handled by business managers. Part of the gross income of the clinic is used to carry the overhead of managers, secretaries and technicians, part is used for research work by the department concerned, part reimburses the University for the rooms and services used, part goes to the University building fund, and the remainder is divided among the members of the geographic full-time faculty in proportion to the amount of work done by each individual. The Private Diagnostic Clinic has acquired an enviable reputation for excellent diagnostic service. In addition, it makes possible the organization of a clinical staff beyond that provided by University funds, and has raised most of the funds for our new building.

Medical Public Relations

I do not wish to prolong this talk, but like Deryl I am so enthusiastic about our school and hospital that I find it difficult to stop. Therefore I want to comment briefly on our public relations—local, state, national, and international. For the first 20 years all of us made every effort to keep Duke Hospital out of the papers and to do our work quietly and thoroughly so that we could be judged by our fruits—namely, our grad-

uates, house staff, satisfied patients, and scientific publications. Now we feel safe in bragging about our accomplishments, knowing that you, our graduates and ex-residents, who are our greatest assets, are making our boasts come true.

The question of medical public relations is an important one. The public is avid for medical information; so it is our duty to make it accurate. Furthermore, the prestige of a hospital and medical school, as well as their financial support and the number of patients, depends on public opinion. Therefore, all of us, with the help of Wendell Weisend and the University News Service, have tried to present our situation by speaking at medical meetings, on George Baylin's splendid program, Town Hall of the Air, and through television, news articles; by serving on state and national committees, visiting foreign countries for our government, and having foreign fellows and scholars studying at Duke. Except in Russia, Duke is now well and favorably known, and our graduates and former house staff are welcomed and respected everywhere. Even in Red China, as I saw in a Shanghai newspaper, one of our Howland ex-residents boasted that his pediatric training has been at Duke.

We all honor Deryl and Mary, and their three daughters and three sons, and are happy to be here at the presentation of this splendid portrait by his former residents to Dr. Edens, the president of Duke University.

* * *

REMARKS BY DR. GARDNER

Dr. Hart, as your oldest resident and the one who has been associated with you more closely than any of the others, I have been given the privilege of presenting something for you to keep in memory of this occasion.

It is a Paul Revere bowl, suitably inscribed, and it has engraved upon it the autographs of all of your former residents.

It is not very large, yet it contains much sentiment.

It contains the affection, the esteem, and the admiration of everyone here for the happy combination of qualities which have made you, we believe, the best professor of surgery in America.

It contains our admiration for your administrative skill, your executive ability,

and your devotion to the University, the School of Medicine, and your department. When you came here 25 years ago, you recognized what would be necessary to build up a superior School of Medicine and a strong Department of Surgery. In the 25 years since then you have dedicated your life to the attainment of that goal. That you have been successful is attested to by everyone here tonight, as well as by our own profession throughout the entire nation.

It contains our admiration for your ability to pick men to build the personnel of your department. Perhaps there is an element of self-flattery when I say you have picked good men (for you have selected everyone of us here—except Dr. Davison, who picked you—and Dr. Edens, who inherited you. Still we all think you have done a splendid job.

It contains our appreciation for your fiscal policies and for your ability to manage a budget and set up the machinery of the diagnostic clinic which has provided research facilities and working conditions to enable you to obtain and to hold your staff in the face of attractive offers elsewhere.

It contains our appreciation for the long hours you have spent in providing physical facilities for your department. No building has been done since the original campus was completed that has not carried with it many hours of your time in its planning. This fact is so well recognized that the artist found a set of architect's drawings the most appropriate object to put in your hands when she painted your portrait.

It contains our appreciation for the freedom you have allowed each one of us; for freedom in the management of our professional practice and freedom in the devel-

opment of the various divisions of your department. We all know intolerant professors of surgery who rule their departments with an iron hand and who lay down dogmatic rules for the management of every situation. We thank you that you are not like one of them and that you have elected to lead rather than drive us.

It contains our admiration for your uncanny surgical judgment and for your technical skill, which has been a model upon which we all have tried to pattern our own technique.

It contains our admiration for your imperturbability, for your good nature and for your fairness in managing a group who at times, I'm afraid, have been difficult and a bit unmanageable.

It contains our admiration for your unfailing gentlemanliness in all situations. Although I am sure we have often provoked you, I have never seen you lose your temper, I have never heard you swear, I have never heard you tell an off-color story. And I have never seen you rude or unmindful of the feeling of others.

Above all else, Dr. Hart, it contains our admiration for your absolute integrity. Everyone of us here, at all times, has been secure in the knowledge that once your word was spoken it would not be changed. This unfailing honesty, this universal fairness, this absolute integrity above all else has cemented us together and brings us together tonight to do you honor.

And so, on behalf of all of your former residents, I present you this bowl. It contains our affection and our esteem and our best wishes for many, many more years as our professor.

"The measure of competence to do surgery is ability to deal properly with any situation that may be encountered in a given anatomical area. Anyone who meets this requirement is morally entitled to do surgery, be he a family physician or a board diplomate.

The physician himself is the best judge of his own competence. If a physician undertakes a procedure which, if he were the patient, he would not permit one of his level of competence to undertake upon himself, he is incompetent to undertake it. Hawley, P. R.: *The General Practice of Medicine*, Bull., Am. Coll. Surgeons (Sept.-Oct.) 1956.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

SEPTEMBER, 1956

THE NORTH CAROLINA MEDICAL CARE COMMISSION

The state Legislature created the North Carolina Medical Care Commission in 1945. Congress passed the Hill-Burton Bill the next year. Thus North Carolina was ready to move forward at once with planning and constructing hospitals and health centers. As a result, the state ranks in the top half dozen in construction projects, new beds, and health centers.

A summary of the Commission's activities from July, 1945, to July, 1956, shows that 230 projects are already finished or to be completed at a total cost of \$88,976,710. The federal share of this was \$32,355,247, or 36.4 per cent; the state, \$16,128,174, or 18.1 per cent; and local authorities \$40,-

493,289, or 45.5 per cent.

The number of local and general hospital beds has increased from 8,019, or 2.4 per 1,000 of population in 1947, to 14,329 existing or authorized beds, or 3.4 per 1,000, in 1956.

Last year the Commission paid \$313,633 to 129 North Carolina hospitals — \$1.50 per day for patients certified as medical indigent by the county superintendent of welfare.

Dr. John Ferrell, the executive secretary of the Commission, summarizes its record thus:

"According to the June 30, 1956, record of the U. S. Department of Health, Education and Welfare of hospital and medical facilities construction by states and territories under the Hill-Burton Program, North Carolina leads all states with 230 projects; and the State ranks fourth as to the number of new hospital beds constructed; and eighth in expenditures for hospital construction. This record does not include about \$40 million appropriated by the Legislature to State institutions for construction of hospital facilities.

"Although much has been accomplished in North Carolina toward improving the medical and hospital facilities, the task is not complete. The greatest need prevails in counties that still have inadequate facilities."

* * *

GOLDEN ANNIVERSARY OF THE SOUTHERN MEDICAL ASSOCIATION

So many members of our State Medical Society belong to the Southern Medical Association that it is fitting for the announcement of the "Southern Medical's" Golden Anniversary to be published in full on page 437 of this issue.

The *Southern Medical Journal*, in recognition of this coming anniversary, has been adorned with gold covers every month since January. And, unlike the traditional lass "all dressed up but with nowhere to go," the *Journal* and the Association it represents, inspired by the many achievements since 1906, really have somewhere to go.

THE NORTH CAROLINA MEDICAL JOURNAL, in behalf of the members of our State Society and also of our Southern Medical Association members, extends heartiest congratulations to the Association upon this auspicious occasion—and best wishes for the next 50 years.

DO WE FACE A SHORTAGE OF PHYSICIANS?

In view of the criticism sometimes leveled at the medical profession that it restricts the number of physicians to be trained, it is interesting to read comments made by Dr. Leonard W. Larson at the national conference on rural health. The following paragraphs are taken from the conclusion of his address.

* * *

"...Great progress has been made during the past decade in producing an adequate number of well-trained doctors. This rate must be maintained, but there are serious problems facing our medical schools today. Foremost is the alarming decrease in the number of qualified applicants seeking admission to our medical schools. The record shows that there were roughly 15,000 different individuals applying for entrance in 1953-1954, compared with about 25,000 in 1949-1950. To put it another way, there were only two applicants for each place a year ago compared with 3.5 applications five years ago. It is recognized, of course, that there were an abnormally large number of GI's trying to enter medical and other professional schools during the late forties. But the picture has changed, and the deans of our medical schools are gravely concerned over the relatively small number of qualified boys and girls who are applying for admission to their schools. One state university, which was forced to increase the size of its freshman class 25 per cent by legislative action, had only 1.1 qualified applicants for each place in the freshman class. We all agree that there must be a steady flow of medical graduates each year to maintain a proper physician-population ration, but we have a right to demand that they be equipped mentally and physically to give their patients the best standard of medical practice. If the number of applicants for admission to our medical schools decreases to the point where the entrance requirements are either lowered or disregarded in order to fill quotas, the quality of medical education will surely suffer. What are the reasons for this decrease in the number of our young people who desire to become doctors? There are at least three:

"First, economic opportunity is greater

in other fields. Pre-medical freshman and sophomore students in our college are being told by their classmates that it is foolish to spend 10 or 12 years preparing for a medical career, plus two years of military service. They are being tempted to switch to engineering, chemistry or physics and wind up four years of college with a couple of years of military service and a job at \$350 to \$400 a month in these fields at the outset.

"Second, medicine has lost its number-one spot as a glamour subject to atomic energy. Our teen-agers are intrigued over the prospect of harnessing atomic energy through chemical, physical and engineering means. This challenge overshadows medicine as a career, and bright young students are turning away from medicine in increasing numbers toward chemistry, physics and engineering.

"Third, our youth is being adversely affected by the series of derogatory articles that have appeared in the public press during recent years and the everlasting hammering of some political leaders against the medical profession. Physicians are pictured as money grabbers with little or no interest in the welfare of patients. Why enter a profession that has lost its soul? Why assume the burden of the long work-week and strains on the emotions if the practice of medicine is just a business devoid of the traditional idealistic appeal of taking care of the sick? These writers and politicians who seem to take keen delight in berating the medical profession are drying up the supply of physicians at the source. Do they honestly believe what they say, or is the remuneration or political advantage their primary concern?

"You who are in attendance at this conference, can, individually or through the organizations you represent, do much to correct the impression which prevails in many quarters that it is nigh unto impossible for qualified boys and girls to gain admission to our medical schools. There is no vital shortage of doctors today; the shortage is in the number of our youth who wish to enter the profession of medicine. Unless the tide changes, there will be a shortage of doctors in the future. You can help stem that tide."

LIABILITY INSURANCE

Within the past two decades the number of claims made against doctors for malpractice has increased steadily. As a result the cost of professional liability insurance has increased greatly, and the amount of coverage needed has climbed to fantastic figures—for juries are notoriously generous with other people's money.

In May, 1954, a committee composed of Dr. George Paschal, chairman, Dr. Alban Papineau and Dr. Kenneth Geddie was appointed to study the situation and offer recommendations to the Society. After two years of careful study the committee submitted a Professional Liability Insurance Program which was approved by the House of Delegates on April 30, 1956.

A letter dated July 9 was sent to every member of the State Society outlining this program. The matter is so important, however, that our Executive Secretary has asked that the essence of the program be published in the NORTH CAROLINA MEDICAL JOURNAL. It will be found on page 430 of this issue. All members who have not read this letter are urged to do so. Any practitioner who does not have liability insurance is taking a real risk—for no doctor, no matter how conscientious, is immune from the danger of being sued by a dissatisfied or avaricious patient. Unless human nature changes greatly there is always the possibility that "be thou as chaste as ice, as pure as snow, thou shalt not escape calumny."

The Saint Paul-Mercury Indemnity Company has made an offer which seems eminently fair. If their experience with losses is favorable, they agree to lower their premiums; if the cost of claims increases, their rates would have to be increased. They offer a share-the-risk proposition which should appeal to most members of our Society.

* * *

NORTH CAROLINA DOCTORS IN THE NEWS

A full page of Dr. George Lull's Secretary's Letter for August 23 is devoted to Dr. George Bond, for 4 years a member of the A.M.A. Council on Rural Health. An accompanying photograph showed how he

looked with a full beard on his first day back at home in Bat Cave. The Secretary's Letter said, in part:

Dr. George Bond, who has been a member of the A.M.A. Council on Rural Health since September, 1952, celebrated completion of his three-year stint with Uncle Sam's submarine fleet by taking his son, George, 14, on a fishing trip in the Canadian wilderness.

The doctor, who was once acclaimed in a Reader's Digest article and also appeared on the popular TV show, "This is Your Life," came out of the Navy a full commander. He served most of his time with a submarine squadron at Pearl Harbor.

When he went into service three years ago, townspeople were raising money to enlarge the Valley Clinic and Hospital at Bat Cave, which Dr. Bond founded. The renovation is all completed now. It includes a new reception room, new x-ray quarters, a new operating room, new recovery room, two new examining rooms and new physicians' offices.

Another physician has joined the staff and many new facilities have been added. These include a new modern ambulance which Dr. Bond received from the "This is Your Life" show, new x-ray equipment, new operating room equipment and a wide variety of hospital supplies.

Dr. Westbrook Murphy is another North Carolina doctor who has received wide acclaim, for his masterly address before the first general session of the last State Society meeting, "A Small Leak Will Sink a Great Ship." Dr. Lull was so impressed by it that he ordered 250 reprints for the A.M.A. headquarters, and sent a copy to every member of the House of Delegates. He also devoted a large part of the Secretary's Letter for August 3 to a discussion of the address. The Bulletins of the American College of Radiology and of the American Association of Physicians and Surgeons both had long discussions of the address, and the editor of the *South Carolina Medical Journal* has asked permission—which was cheerfully granted—to reproduce it in full.

The North Carolina medical profession can take just pride in the recognition given Doctors Bond and Murphy.

President's Message

The shortage of medical house officers is a problem of great concern for many of us in medicine today, and little progress is being made toward a solution. The problem is not only state-wide but national. In 1955 there were 850 hospitals in the United States approved for 11,048 internships, and only 6,960 American medical graduates available to fill those internships. It is a problem not just of medical education but of medical care.

Non-teaching hospitals of the locally endowed type are desperately in need of house officers at the intern level. Interns are just not available for such hospitals, while hospitals connected with teaching institutions seem to have more than they actually need. There are many reasons for this great shortage of interns and residents in non-teaching hospitals, most of which are entirely the fault of the hospitals, but some of which cannot be blamed on them. For instance, as a result of agencies such as the vocational rehabilitation and crippled children bureaus, rural health programs and voluntary health insurance, plus the increase in the average earning capacity and many other factors, the percentage of so-called service cases, particularly in non-teaching institutions, has markedly decreased. This, of course, means that the greatest source of teaching material for residents and interns has been markedly decreased. In 1932 one large non-teaching hospital in North Carolina had an average 50 to 65 per cent of its cases on house service, whereas today that same hospital reports an average of from 5 to 10 per cent. Partly because of this fact and partly because of gross neglect, the teaching program in most non-teaching hospitals has been allowed to become sadly inadequate. This is an accepted fact by all of us. It does not, however, account entirely for the large number of interns who are remaining in teaching institutions far longer than they are needed.

Many deans and heads of departments in medical schools readily admit that they do not need interns and would prefer to have only residents and assistant residents. The head of a department in one of the large institutions of this state has said that he would like to have more assistant residents

but could not because part of his financial allotment was taken up by interns on that service. Many medical students admit that they would like to go to non-teaching institutions for their internship but are afraid that they will lose their chance to get satisfactory assistant residencies.

All of us in private practice have had patients whom we sent to teaching hospitals return and tell of having had their histories taken four or five times by different medical students and interns. There seems to be a duplication of effort in order to furnish teaching material, when elsewhere there is much material crying for adequate work-up. Many, particularly interns, have said that an internship in a teaching hospital is little more than a fifth year of medical school. Their didactic teaching is excellent; their practical responsibility in the handling of patients is almost negligible. If a medical student's academic training is not complete at the end of four years, then the medical school curriculum should be increased to five years. If four years' training is adequate, then graduates should have made available to them adequate practical experience in the diagnosis and management of actual patients, and this can be done.

Out of this discussion two primary factors seem to loom: (1) the inadequacy of the teaching programs of non-teaching institutions; and (2) the inability of our house officers at the intern level to maintain their seniority toward assistant residencies in teaching institutions unless they remain in that teaching institution. It seems to me that both of these problems could be obviated fairly easily. First of all, there should be compiled a set of standards as to what constitutes an adequate teaching program in a non-teaching hospital. These standards should be set in North Carolina by a board composed of representatives of both the teaching and the non-teaching institutions. The non-teaching hospitals should go all out to meet and maintain these standards.

As to the second problem, teaching institutions should reduce their number of internships to the lowest level of actual need, if any, and raise their number of assistant residents to the level they actually

need. The teaching institutions should then work out some system whereby graduates of their institutions going to non-teaching institutions approved by this committee on standards could maintain their seniority for returning as assistant residents. This does not seem to be too much to ask of the teaching institutions. They have a moral obligation, first to the proper training of house officers, but second to those non-teaching institutions which are admittedly their greatest source of referrals.

Let us briefly review what such a program would accomplish. The non-teaching institutions would be able to obtain qualified graduates of American medical schools for their house office positions, and the patients in those hospitals would benefit thereby. Second, the teaching institutions would be able to take more house officers at the assistant resident and resident levels and thereby be able to devote more time and material to teaching the medical specialties. Third and most important, our young doctors in training would markedly benefit by better rounded education and training. They would not only receive more practical experience as interns, but they would have a good 12-month course in the private practice of medicine, the teaching in which they are so sadly lacking. Our young doctors come out into private practice today superbly trained as technicians and scientists, but lacking training in the humanities of medicine and the private management of patients. This is primarily because from the day they enter medical school to the day they open up their private offices, with very few exceptions, they have no training in the private practice of medicine and have not been taught by anyone who has ever been in the private practice of medicine. This fact, I think, speaks for itself.

It is a source of gratification that the number of graduates from the three medical schools in this state going to non-teaching institutions for their internship markedly increased this past year. This increase is believed to be due to the efforts of the State Medical Society's committee to study medical education and medical care at the house officer level. It is hoped that this committee's efforts will continue to be productive and that a more equitable house officer program in this state will result.

Donald B. Koonce, M.D.

Committees and Organizations

PROFESSIONAL LIABILITY INSURANCE PROGRAM FOR THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

The Saint Paul-Mercury Indemnity Company, 111 West Fifth Street, St. Paul 2, Minnesota, and its agents who write this insurance shall, with our approval, solicit business from the membership of our Society. In order that each member may be acquainted with this program and be apprised of an impending visit by one of the Insurance Company's agents, I submit to you the following outline of the program which has been adopted.

1. The Program: a. The furnishing of adequate coverage to all members in good standing whose application is approved. The case of any member of questionable desirability will be referred to the Insurance Committee for review and discussion before any action is taken by the Company. b. A comprehensive educational program for society members as to the cause, prevention and handling of claims is to be conducted jointly by society and company.

2. A thirty day cancellation clause for each policy will be in effect.

3. The insurance will be produced and written as individual policies by the company agents throughout the State of North Carolina.

4. A comprehensive policy covering professional liability, personal liability of the physician and his family, office or clinic premises, and coverage on surgical instruments and such other miscellaneous equipment including furniture and fixtures necessary in the practice of his profession is highly recommended by the Society. However, professional liability insurance alone will be available to those members who wish it.

5. When the program has been in effect for 18 months, and periodically thereafter, a review of loss experience in North Carolina will be made and rates adjusted accordingly, subject to approval of the North Carolina Insurance Commissioner.

6. Claims will not be settled by the company without the consent of the insured unless the approval of the Society Insurance Committee has been given.

7. All claims reported to the company will be reported to the Insurance Committee for review and consultation.

8. The society part of the program will be handled through the office of the Executive Secretary and under the direction of the Insurance Committee of the Society.

Your Committee, the Executive Council, and the House of Delegates believe this program is a sound and progressive step toward complete insurance protection, in which the Society will exercise a considerable degree of control, and we urge that our membership subscribe. Such opinion, however, does not involve any discrimination against, or condemnation of, other programs and companies. It is simply that this program appears to meet most suitably the needs of the medical profession at this time and offers real hope of improvement in the professional liability insurance situation in this state.

By this program we hope to prevent, if possible, an increase in professional liability rates and to work toward a reduction in cost based upon the loss experience with the Company. The combined services of the Company and the cooperation of the membership will contribute materially toward the achievement of this goal.

Any questions can be answered through the Executive Secretary's office of The Medical Society of the State of North Carolina, 203 Capital Club Building, Raleigh, North Carolina, or at the Company's offices located at 412 Addison Building, Charlotte 2, North Carolina, and 323 West Morgan Street, Raleigh, North Carolina.

Respectfully submitted,

THE COMMITTEE ON
PROFESSIONAL LIABILITY
INSURANCE

Kenneth B. Geddie, M.D.
High Point

Alban Papineau, M.D.
Plymouth

George W. Paschal, Jr., M.D., Chm.
Raleigh

THE DISABILITY FREEZE AND THE DOCTOR

The following article was sent for publication in state medical journals by Dr. Charles L. Farrell, president of the Conference of Presidents and Other Officers of State Medical Journals and a member of the Advisory Committee to the Department of Health, Education and Welfare. It is timely enough to justify publication in full.

* * *

In recent months many physicians have heard from patients about the disability freeze provision in the social security law. This provision, added to the old-age and survivors insurance program in 1954, permits people who have prolonged total disability to apply to have their social security records frozen for the period of their disability. Thus, the time when they could not work and so had no earnings credited to their social security accounts does not count against them in determining their rights to benefits, nor the amount of benefits which will be payable to them at age 65, or to their families in case they should die.

Before a worker's social security record can be frozen, he has to meet certain requirements. His social security record up to the time of his disability must show that he was in fact a worker, with a fairly regular and recent work history. In addition, he must be shown to have a medically determinable physical or mental impairment severe enough to keep him from engaging in any substantial gainful activity—one which has existed for more than six months, and is expected to last indefinitely or end in his death.

Securing The Medical Evidence Of Disability

The medical evidence needed to establish the nature and severity of the applicant's disability, the date it began, and its prognosis comes from the doctor who has treated the worker and knows his case, or the hospital or institution in which the worker has been confined. A medical report form was designed to assist the physician in furnishing the needed medical evidence and to indicate the nature and extent of clinical detail which would be necessary. It is given to the applicant for the "disability freeze," and he is asked to have it filled out by the physician most familiar with his impairment. The form itself is modeled closely after the medical report used by major life insurance companies in their disability claims work.

In adapting it for use in the "freeze" program, the recommendations of a Medical Advisory Committee were closely followed. This committee, composed of well qualified representatives of the medical and related non-medical professions, gives advice and guidance to the Social Security Administration on the medical aspects of the "disability freeze" program.

If you have received this medical form to fill out for any of your patients, you are probably aware that the law makes the disabled worker responsible for seeing that medical evidence is submitted for him and for paying any costs involved. The law does not permit the Government to pay any costs in connection with securing the medical evidence needed for a determination of disability. You may also know that to insure the confidentiality of the medical evidence, the medical report form is not to be returned to the patient, but is to be mailed by the physician direct to the local social security office. This office, incidentally, is ready to furnish additional information to the physician concerning the medical report form and the operation of the disability freeze.

Determining Disability

Determinations as to disability based on the evidence submitted are made under an agreement with the federal government, by professional members of an agency of the state in which the applicant resides. In most states, this is the vocational rehabilitation agency. Since referral of disabled individuals for any rehabilitative services which might return them to gainful work is an important aspect of the program, each person applying for the social security disability freeze is told about the availability of vocational rehabilitation services.

On the professional team in the state agency at least one member is a doctor of medicine. The team reviews and evaluates all medical evidence assembled in the applicants file, as well as such non-medical factors as age, education and occupational experience. Certain medical guides and standards, worked out with the advice of the Medical Advisory Committee, are used in the consideration of the medical evidence. But, although these guides and standards can be applied in most cases, they are not rigid and arbitrary. The final determination in each case is based on all the available facts on the individual's impairment and vocation-

al history, and, there is consultation among physicians in any borderline situation.

Guides To Filling Out The Medical Report Form

No matter how good the standards, nor how considered the judgment of the reviewing team, the determination reached can be no sounder than the evidence upon which it is based. To make sure that he is providing sufficient medical evidence for a prompt and fair determination, the doctor will want to consider the following guides in filling out medical report forms for those of his patients who have applied for the social security disability freeze:

First, include sufficient clinical detail to enable the reviewing team to make a sound determination as to the severity and extent of the patient's current condition; *second*, give enough of the clinical history to provide information as to when the disability began, and when it became so severe as to keep the patient from working; *third*, describe the probable course of the condition from now on, so that a decision can be reached as to whether the impairment is likely to continue indefinitely, or end in death, or whether it is self-limiting, or remediable in the foreseeable future.

BULLETIN BOARD

COMING MEETINGS

University of North Carolina Postgraduate Courses in Medicine—Morganton, on Wednesdays, September 19-November 7, lectures at 4:00 and 7:00 p.m.; at Asheville, on Thursdays, September 20-November 8, at 5:00 and 7:30 p.m.

Second District Medical Society Meeting—Washington, North Carolina, October 3.

Southeastern Allergy Association; Eleventh Annual Meeting—Hotel Barringer, Charlotte, October 5-6.

Ninth Annual State Rural Health Conference—Sir Walter Hotel, Raleigh, October 11.

Sixth District Medical Society Meeting—North Carolina Memorial Hospital, Chapel Hill, October 17.

Tennessee Valley Medical Assembly — Read House, Chattanooga, Tennessee, October 1-2.

Southern Medical Association, Golden Anniversary Celebration—Read House, Chattanooga, Tenn-

essee, October 2-3; **Annual Scientific Sessions—**Washington, D. C., November 12-15.

Academy of Psychosomatic Medicine, Third Annual Meeting—Hotel Plaza, New York City, October 4-6.

American College of Surgeons, Forty-Second Annual Clinical Congress—San Francisco, October 8-12.

American Rhinologic Society, Annual Meeting—Chicago, October 9-13.

American College of Gastroenterology, Annual Convention—Hotel Roosevelt, New York City, October 15-17; **Postgraduate Course, Hotel Roosevelt, New York City, October 18-20.**

American College of Chest Physicians, Eleventh Annual Postgraduate Course—Hotel Knickerbocker, Chicago, October 15-19; **Ninth Annual Postgraduate Course—**Park Sheraton Hotel, New York City, November 12-16.

American College of Obstetricians and Gynecologists, Fifth Annual Clinical Meeting — The Palmer House, Chicago, November 7-9.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Effective September 10, the clinical pathologic conferences and the Bowman Gray Medical Society program will be held weekly at 7:30 p.m. in the amphitheater. The first of the fall meetings will be a joint session of the Sigma Xi Club and the Bowman Gray Medical Society, when Dr. Dewitt Stetten, Jr. will present a paper, "The Role of Glycogen in Mammalian Economy." Dr. Stetten, of the National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, is associate editor of *Metabolism*, *American Journal of Medicine*, *Journal of Chronic Diseases*, and *Journal of Biological Chemistry*. The meeting will be open to the interested public.

Future programs of special interest, in addition to the regular clinical pathologic conferences, include a geriatrics symposium on October 15; another Sigma Xi and Bowman Gray Medical Society meeting on October 22, at which time Dr. Marshall Brucer will speak on "Isotope Measurement Techniques." On November 5 the annual Herbert M. Vann Memorial Lectureship will be sponsored by the Phi Rho Sigma fraternity group, when Dr. John F. Huber will speak on "Bronchopulmonary segments."

On November 12, Dr. Josef Warkany will speak on "Induction of Congenital Malformations: Experiment and Interpretations." On November 29, Dr. B. F. Skinner will speak on "Experimental Analysis of Behavior," and on the following week, December 3, the Bowman Gray Medical Society will sponsor a Symposium on Pain.

* * *

Recent additions to the faculty include Dr. Peter Baram, as instructor in microbiology. Dr. Baram

received his undergraduate education at the University of Illinois where the B.S. degree was conferred in 1949. He earned both the M.S. and Ph.D. degrees at the University of Illinois Professional Colleges before assuming his duties here on September 1.

Dr. Marcus Frank Sohmer, Jr. has been elected to the position of instructor in internal medicine, and will be associated in the department with Dr. David Cayer, professor of gastroenterology. Dr. Sohmer completed a one-year internship, a one-year assistant residency, and a one-year appointment as fellow in gastroenterology in the North Carolina Baptist Hospital and the Bowman Gray School of Medicine, before accepting a fellowship in gastroenterology at Duke University Hospital in 1955. Dr. Sohmer is a graduate of the Bowman Gray School of Medicine of Wake Forest College.

Dr. Harry Mitten Carpenter will assume his duties as instructor in pathology effective October 1956, upon his release from the Navy.

Dr. Carpenter is a graduate of the Bowman Gray School of Medicine of Wake Forest College, and completed pathology training in the North Carolina Baptist Hospital and the Bowman Gray School of Medicine, in addition to a brief appointment in the Children's Hospital, Cincinnati, immediately prior to entering the Navy. Since October 1954, he has been assigned to the Naval Medical Research Institute, Pathology Division, National Naval Medical Center, Washington.

* * *

Members of the Department of Physiology and Pharmacology participated in the fall meeting of the American Physiological Society, held at the University of Rochester, Rochester, New York, September 4-7. Dr. Harold D. Green presented a paper, "Cerebral Circulation," and Dr. K. Ottis, fellow of the American Physiology Society, reported on work done in the Department of Physiology and Pharmacology in his presentation "Adrenergic and Cholinergic Drugs on Splenic Inflow and Outflow." Dr. A. B. Denison, Jr., assistant professor of physiology and pharmacology, presented a paper "Cholinergic Coronary Arteriolar Receptors."

* * *

The Smith, Kline and French Foundation of Philadelphia announces grants totaling more than \$300,000, of which \$5,000 was awarded to the Department of Microbiology and Immunology in the Bowman Gray School of Medicine. The grant was made to support the purchase of new equipment and facilities necessary for the further development in the department under the direction of Dr. Robert L. Tuttle.

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Dr. Richard G. Proctor, assistant professor of psychiatry and neurology, will present a paper, "Psychiatric Program in Small Industry" at the meeting of the Mid-continent Psychiatric Association, September 21-23.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

Duke Hospital's new \$3,386,000 seven-floor addition is now entering final stages of construction and is expected to be completed by March, 1957, Hospital Superintendent F. Ross Porter announced recently.

Under construction since January 1955, the addition will provide 109 new beds, expanded outpatient facilities designed to relieve present crowded conditions, and many improvements in existing services.

The addition will bring the total number of beds to 668, making Duke Hospital second in size only to Johns Hopkins among private general hospitals in the South.

In addition to 10 new operating rooms, surgical facilities in the wing will feature such innovations as set-up and preparation rooms, to expedite surgery and provide for more efficient use of facilities; an intensive nursing area for special care of patients most in need of attention; and lounges for operating room doctors and nurses.

The new clinic facilities are designed to serve an average of some 500 outpatients per day—more than twice as many as existing facilities were designed to accommodate. Occupying three floors of the wing, the outpatient facilities will reduce waiting time and provide faster and more efficient medical service.

The addition also will open up new classrooms for the Duke University School of Medicine and will make available better employee facilities, including lockers and lounges, a larger cafeteria and more space for business and administrative offices.

A new specialized training program for North Carolina public welfare workers will be launched at Duke Hospital this fall under provisions of a \$10,000 grant from the National Heart Institute.

Miss Janet Wien, director of Duke Hospital's Social Service Division, announced recently that the grant provides for a series of training institutes at Duke in the field of heart disease.

Four three-and-half-day institutes are being planned for 1956-1957, with the first tentatively scheduled for late this fall. Miss Madge Aycock of the Duke Hospital Social Service Division will direct the institutes.

Instructors will come from the Duke medical faculty and other Duke Hospital groups such as physical and occupational therapy, dietetics, nursing and social service; and also from the state and local boards of public health.

Agencies cooperating with Duke Hospital in the training program are the North Carolina Boards of Public Welfare and Public Health; the North Carolina Division of Vocational Rehabilitation; and the North Carolina Heart Association.

Dr. C. Ronald Stephen, professor of anesthesiology at Duke University, has accepted the editorship of a new journal, *Survey of Anesthesiology*, which will be published in February, 1957, by The Williams & Wilkins Company of Baltimore.

The bi-monthly journal will contain digests of important articles on anesthesiology, biochemistry, physiology and pharmacology gathered from hundreds of foreign and domestic journals. Dr. Stephen and a staff of consultant and associate editors will add editorial comments and evaluation to the articles selected for digesting.

The journal will be priced at \$10.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

The School of Medicine of the University of North Carolina is this year celebrating the fortieth anniversary of the establishment of its program of Postgraduate Medical Education.

The pioneer undertaking was the first such program to be developed in the United States, constituting another "first" for the first state university to open its doors.

The first program of extension courses, designed to help North Carolina physicians keep up with advances in medical knowledge and technique, was begun in 1916 by the School of Medicine, in cooperation with the UNC Extension Division and the North Carolina State Board of Health.

Last year a total of 11 courses were held. These courses were attended by 532 doctors from throughout the state. Five of the courses were held in Chapel Hill and six were held in other locations. These locations included Morganton, Asheville, Kinston, Albemarle, Statesville and the Ahsokie-Edenton-Elizabeth City area.

Dr. Kenneth M. Brinkhous, chairman of the Department of Pathology, participated in the International Hemophilia Symposium in New York City from August 24-25.

Dr. Brinkhous, chairman of the symposium, made a welcoming speech at the opening session on August 24. He is also chairman of the Medical Advisory Board of the Hemophilia Foundation.

Also attending from the UNC Pathology Department were Drs. John B. Graham, Robert H. Wagner and Margaret Swanton of Chapel Hill, and Dr. Robert D. Langdell, who is presently on leave of absence for military service and stationed at Walter Reed Army Medical Center in Washington, D. C.

Dr. Graham spoke on "Genetic Problems," Dr. Wagner on "Antihemophilic Factor: Current Status of Purification, Chemical and Physical Characterization," Dr. Swanton on "Pathology of Hemarthrosis in Hemophilia," and Dr. Langdell on "Transfusion Therapy in Hemophilia."

Dr. Robert R. Cadmus, director of the North

Carolina Memorial Hospital, was made a fellow recently of the American College of Hospital Administrators.

Dr. Cadmus has been a member of the organization for a number of years. He received the status of a fellow of the college on September 16 in Chicago. Not less than 10 years of service as a hospital administrator is required before a person is considered for this honor.

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Dr. William E. Loring, assistant professor, Department of Pathology, resigned August 18 to become assistant professor of pathology, New York University School of Medicine, New York City.

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Dr. George C. Ham, professor and chairman of the Department of Psychiatry of the UNC School of Medicine, has announced the receipt of a total of approximately \$150,000 in grants from the National Institute of Mental Health of the U. S. Public Health Service for the present fiscal year.

These grants include funds for: (1) stipends for residents in psychiatry and salaries for staff members to supplement the regular departmental staff's instruction in this specialty; (2) a pilot project to explore the possibility of more effectively teaching and integrating basic psychiatric concepts with the other basic medical science disciplines; (3) an experimental teaching plan for first-year medical students oriented toward the multidisciplinary study of human illness; (4) the development of a program of training, research and service in child psychiatry and (5) the extension and expansion of a psychological internship program in the Department of Pathology.

With the exception of the grant for child psychiatry, these grants represent the continuing support of programs already begun from one to three years ago which have enabled the department to provide training, teaching, and service that would otherwise have been impossible.

The child psychiatry unit has only recently been organized under the guidance of Dr. Lucie Jessner, professor of psychiatry, and will now be in a position to expand its services.

* * *

Ten promotions were announced recently in the UNC School of Medicine. The names and the new rank of the personnel promoted are as follows: Drs. W. H. Sprunt, Newton Fischer, Paul Bunce, and George Penick to associate professors; Drs. B. A. Schottelius, J. N. Allen, J. T. Proctor, Robert Langdell, and J. W. Pearson to assistant professors.

* * *

Dr. A. T. Miller, Jr., professor of physiology, attended the twentieth International Physiological Congress in Brussels, Belgium, during the first week of August.

Dr. Miller made the trip under a grant from the U. S. Navy. Following the meeting, Dr. Miller visited several European laboratories.

* * *

Dr. J. H. Ferguson, professor of physiology, left August 11 for Cape Town, South Africa, where he delivered a paper on blood clotting at the University of Cape Town the latter part of August.

Dr. Ferguson is a former resident of Cape Town, having lived there from the time he was a small child until he received his first university degree. He later attended Oxford and Harvard Universities.

NORTH CAROLINA STATE RURAL HEALTH CONFERENCE

The ninth annual State Rural Health Conference will be held at the Sir Walter Hotel in Raleigh on October 11. Theme of the conference will be: "Together We Build Better Health."

The program will include a discussion of "The Role of the Physician in the Community," by Mr. W. R. Garey of Fallston, and Dr. George F. Bond of Bat Cave; reports by community leaders on "Community Efforts in Health Programs," under the leadership of Dr. Selz C. Mayo of State College; a film on "Better Health—The 4-H Way," presented by L. R. Harrill, state 4-H leader; a panel on "Training Opportunities and Employment Needs for Health and Medical Personnel," with Dr. L. M. Massey, president of the Wake County Dental Society, as leader and Drs. W. C. Davison, Henry C. Clark, M. B. Bethel, Horace K. Thompson, and Miss Vivian Culver as participants; and an address, "Where Do We Go from Here?" by Aubrey D. Gates, executive director of the A.M.A. Council on Rural Health, Little Rock, Arkansas.

SOUTHEASTERN ALLERGY ASSOCIATION

The eleventh annual meeting of the Southeastern Allergy Association will be held at the Barringer Hotel in Charlotte on October 5 and 6. The program follows:

Friday, October 5, 1956

Theme: Allergy and Its Relationship to Medicine and Surgery

8:30 a.m. Registration

Morning Session—Chairman, Ben N. Miller, M.D.

8:15 a.m. "Allergy and Its Relation to General Medicine"

(15 min.) Katherine Baylis MacInnis, M.D.,
Columbia, South Carolina

9:40 a.m. "Drug Allergy"—David Thomas, M.D.,
Augusta, Georgia

(15 min.)

10:00 a.m. "The Steroids and their effects on
(30 min.) various Immunological and Allergic Reactions"—Carl E. Arbesman, M.D.,
Buffalo, N. Y.

President American Academy of Allergy

10:30-10:45 a.m. Recess-Registration

10:45 a.m. "The Allergist, the Otolaryngologist, and the Patient" — Theo E. Walsh, M.D., Prof. of Otolaryngology, Washington University, St. Louis, Missouri.

11:30 a.m. "A New Look at Allergy"—Charles P. Wofford, M.D. in collaboration with John B. McKinnon, M.D. and Ben D. Hall, M.D., Johnson City, Tennessee.

12:00 noon "The Changing Picture of Allergy" (45 min.) —Ethan Allan Brown, M.D., Boston, Massachusetts, President American College of Allergists.

12:45 p.m. Luncheon Recess

Afternoon Session

Chairman, Charles P. Wofford, M.D.

2:00 p.m. "Bronchial Asthma with Complications" (1 hour)

Discussor: Oscar C. E. Hansen-Pruss, M.D., Professor of Medicine, Duke University Medical School, Durham. Necropsy Discussion: Gordon R. Hennigar, M.D., Associate Professor of Pathology, Medical College of Virginia, Richmond, Virginia.

3:00 p.m. Panel on Pediatric Allergy—Lewis D. Hoppe, M.D., Atlanta, Georgia.

"The Pediatrician and Preventive Measures"—Mary Margaret McLeod, M.D., Sanford.

"Allergic Dermatitis in Children"—G. Frederick Hieber, M.D., St. Petersburg, Florida.

"Psychiatric Aspects of Allergy in Pediatrics"—Olin Shivers, M.D., Atlanta, Georgia.

5:00 p.m. Recess

5:10 p.m. Business Meeting

7:30 p.m. Cocktails—Banquet

Saturday Morning, October 6, 1956

Chairman, Andrew D. Taylor, M.D., Charlotte

9:00 a.m. Panel: "Role of Chronic Lung Disease in Chronic Asthma"

Moderator, Oscar Swineford, Jr., Professor of Internal Medicine, University of Virginia Hospital, Charlottesville, Virginia.

Introduction: Oscar Swineford, Jr., M.D.

"Physiology of Normal Breathing" Changes produced by chronic lung diseases—Kelly T. McKee, M.D., Associate Professor of Medicine, Medical College of South Carolina.

"Pathogenesis and Description of the Chronic Lung Diseases Associated with Wheezing"—John L. Guerrant, M.D., Associate Professor of Internal Medicine, University of Virginia Hospital, Charlottesville, Virginia.

10:-15-25 a.m. Recess (10 minutes)

10:25 a.m. "Differential Diagnosis of Asthma Due to Allergy, Infection, and Chronic Lung Disease"—Alexander McCausland, M.D., Roanoke, Virginia.

"Medical Treatment of Chronic Lung Disease: Antibiotics, Allergy, Spasmolytics, Postural Drainage, Expectorants"—Ben Miller, M.D., Columbia, South Carolina.

"Surgical Treatment of Chronic Lung Diseases Which Cause Asthma; Bronchoscopy, Excision of Tumors, lobes, cysts, nerve resection, etc."—William A. Hopkins, M.D., Atlanta, Georgia. Questions to be answered by the essayists.

This program has been accepted by the American Academy of General Practice for ten hours credit in Category No. 2.

SIXTH DISTRICT MEDICAL SOCIETY

The Sixth District Medical Society will hold its annual meeting on October 17, commencing at 2:30, at the North Carolina Memorial Hospital, Chapel Hill. The scientific program includes welcoming address by Dr. Walter Reece Berryhill, Dean of the University of North Carolina Medical School; "Management of Common Dermatological Problems," by Dr. J. Lamar Callaway of Duke University; "Urological Observations That Can Be Made By the General Practitioner," by John S. Rhodes of Raleigh; "Some Thoughts on Treatment of Hyperthyroidism," by Dr. William M. Nicholson of Duke University; a clinicopathologic conference conducted by Dr. Charles H. Barnett and Dr. Kenneth N. Brinkhouse of the University of North Carolina School of Medicine; and a demonstration on extra-corporeal circulation, to be conducted by Dr. Richard M. Peters of the University of North Carolina School of Medicine.

DURHAM-ORANGE COUNTY MEDICAL SOCIETY

The Durham-Orange County Medical Society met on August 8 at the Hope Valley Country Club in Durham. The president, Dr. Kenneth Brinkhouse, presided.

During the business meeting a report on the poliomyelitis situation was given by the chairman of the society's Polio Committee, Dr. Arthur London. Dr. Warner Wells, assistant professor of surgery at the University of North Carolina School of Medicine, then spoke on the book "Hiroshima Diary," which he had translated and edited. He also showed several foreign editions of the book, which has been published in many countries.

NEWS NOTES

The Private Diagnostic Clinic of the Bowman Gray School of Medicine of Wake Forest College has announced the appointment of Dr. M. Frank Sohmer in gastroenterology, in association with Dr. David Cayer.

* * *

The Wilson Clinic has announced the association of Dr. John McCain for the practice of internal medicine, at 302 East Green Street, Wilson.

* * *

Dr. Harold R. Hoke has opened his office at 614 North Hamilton Street, High Point, for the practice of obstetrics and gynecology.

SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association will celebrate its Golden Anniversary with a special program at the Read House, Chattanooga, Tennessee, Tuesday evening and Wednesday forenoon, October 2-3. This will be a historical and inspirational meeting and will not conflict with the regular annual scientific session at Washington, November 12-15.

The Golden Anniversary Celebration will begin with a dinner meeting at the Read House, Chattanooga, on Tuesday evening, October 2. A feature of that program will be an address by Dr. R. L. Sanders, Memphis, immediate past-president of the Southern Medical Association, on "Fifty Years of Medicine in the South." Dr. Sanders graduated in medicine at Nashville in 1906, his fifty years of practice running concurrently with the fifty years of the Southern Medical Association. Dr. Dwight H. Murray, Napa, California, president of the American Medical Association, will represent the A.M.A. at the celebration. A feature of the Wednesday, October 3, morning session will be the unveiling of a plaque to be placed in the Read House commemorating the birth of the Southern Medical Association fifty years before on that date.

Physicians who are members of their county and state medical societies are most cordially invited to come to this Golden Anniversary Celebration, the celebrating of the fifty years that the Southern Medical Association has been a great force in the advancing of scientific medicine in the South.

* * *

The Southern Medical Association is pleased to announce the establishment of its Distinguished Service Award for the purpose of recognizing a physician-member of the Southern Medical Association for outstanding contributions to the advancement of medicine. The award is symbolized by an attractive 14K gold medal, the first one of which will be awarded at the Association's Golden Anniversary Meeting in Washington, D. C., November 12-15, 1956.

AMERICAN MEDICAL ASSOCIATION
NEWS NOTES

New Film On Auto Crash Injuries

A 15-minute motion picture on the part being played by the medical profession in the prevention of auto crash injuries has been released jointly by the American Medical Association and the Ford Motor Company.

Entitled "On Impact," the film is based on scientific information about auto injuries presented at the A.M.A.'s Annual Meeting last June.

Prints of "On Impact" are being sent to all television stations in the United States for possible use on public service time. In addition, the feature can be booked from the A.M.A.'s Film Library by county and state medical societies and their auxiliaries for showing at meetings or to the general public.

A.M.A. Pamphlet Sales Hit Record

More than 396,000 health education pamphlets were sold by the A.M.A.'s Bureau of Health Education during the 12 months ending June 30, 1956. This represents sales in single copies or small quantities. These sales are of interest since they indicate a widespread use by non-medical persons of materials prepared and sold by the A.M.A. They also furnish a valuable index of the health interests of a considerable cross-section of the American people.

An analysis shows that the largest single group of pamphlets sold is 69,000 on the health of the school age child. Mental health pamphlets were second with 35,574; accidents and first aid 25,575; teeth 18,674; nutrition and diet 18,000; maternal health 17,296; physical fitness 15,319, and heart and circulation 12,400. Most of the pamphlets are reprinted from *Today's Health*.

Industrial Health Meeting Scheduled For February

The A.M.A.'s Council on Industrial Health announces plans are being made to hold the next Congress on Industrial Health February 3-6 at the Biltmore Hotel, Los Angeles. The four-day meeting will feature technical sessions on such things as industrial vision, management of burns, pesticides and herbicides, and hearing loss due to noise. Additional program details will be announced later.

A.M.A. Produces Film On Medical Organization

A.M.A.'s new 30-minute color movie designed to acquaint physicians with the services and activities of their national organization will be ready for distribution this month (September). Entitled "The Case of the Doubting Doctor," the film was prepared primarily for medical society meetings. It was previewed August 29 at A.M.A.'s PR Institute in Chicago.

As the story opens, one of the doctors indicates his lack of enthusiasm for A.M.A. Two other physicians try to knock out his criticisms that A.M.A. is undemocratic and run by an iron-clad clique. As a result, the "star" bets that he can prove he's right about medical organizations.

The following scenes show the doctor taking his first real look at organized medicine. A.M.A. activities which benefit both doctor and public are described. In the final scene, the doctor admits he was all wrong.

Bookings may be arranged for this 16mm film from A.M.A.'s Film Library.

AMERICAN RHINOLOGIC SOCIETY

A symposium on "Expanding Horizons in Rhinology," papers on rhinological problems, and workshop presentations of nasal techniques will feature the scientific program at the second annual meeting of the American Rhinologic Society in Chicago, October 9-13.

A dinner and evening business meeting will be held in the Illinois Masonic Hospital, 834 Wellington Avenue, on the opening day. For the next three days, a clinical program will be presented in the hospital under the direction of the Cottle Fund for Medical Research and Education. Dr. Maurice H. Cottle, Chicago, founder of the Society, will be in charge.

Among the participants in the symposium, to be held on the morning of October 13 in the Palmer House, will be Dr. Newton D. Fischer, University of North Carolina School of Medicine, Chapel Hill.

Dr. Matthew S. Ersner, professor of otolaryngology and rhinology, Temple University, Philadelphia, will speak on "The Dynamics of Rhinology" at the annual dinner on the closing day. Dr. Ralph H. Riggs, Shreveport, president of the society, will preside.

There is no registration fee. The profession is welcome to attend the scientific sessions as guests of a member of the Society.

Further information may be obtained from Mrs. Mabel Campbell, corresponding secretary, 834 Wellington Avenue, Chicago 14, Illinois.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

The National Foundation for Infantile Paralysis announces that postdoctoral fellowships are available for full time study in preparation for careers in research and/or academic medicine, or in the clinical fields of psychiatry, rehabilitation, orthopedics, and the management of poliomyelitis and preventive medicine.

Financial support of the fellow varies, and compensation to the institution is arranged according to the program undertaken. For a full academic program, tuition and fees are paid; for other programs, a sum not to exceed \$1,250 per year including tuition.

All awards are made upon recommendation of the appropriate National Foundation Fellowship Committee. U. S. citizenship is required, but those who have filed a petition for naturalization will be considered. Partial fellowships are available for

qualified veterans to supplement G.I. educational benefits.

For further information write to: Division of Professional Education, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

AMERICAN COLLEGE OF SURGEONS

All members of the medical profession are invited to attend any of six sectional meetings of the American College of Surgeons, to be held in conveniently located cities in the United States, Canada and Puerto Rico during 1957.

Meeting cities are San Juan, Puerto Rico, January 16-18; New Orleans, Louisiana, February 4-7; Seattle, Washington, February 28-March 2; Washington, D. C., March 18-20; Toronto, Ontario, March 25-27; St. Paul, Minnesota, April 8-10.

AMERICAN ACADEMY OF GENERAL PRACTICE

More than 400 physicians, dignitaries, and guests attended the formal dedication of the new American Academy of General Practice national headquarters building in Kansas City, Missouri, on September 1. The principal speaker was Dr. Dwight H. Murray, Napa, California, president of the American Medical Association.

The new reinforced concrete building, at the corner of Volker and Brookside Boulevards, houses the Academy staff and the editorial and business offices of GP magazine, published monthly by the Academy.

AMERICAN COLLEGE OF GASTROENTEROLOGY

The annual convention of the American College of the American College of Gastroenterology will be held at The Roosevelt in New York City on October 15, 16, and 17.

The program will feature six panel discussions on the diseases of the gastrointestinal tract, one to be presented by each of the six medical schools in New York City. In addition, there will be individual papers, a special motion picture program, and both scientific and commercial exhibits. The sessions will be open to all physicians without charge.

Following the convention, the annual course in postgraduate gastroenterology, under the personal direction of Dr. Owen H. Wangenstein of Minneapolis, Minnesota, and Dr. I. Snapper of Brooklyn, New York, will be given on October 18, 19, and 20, at The Roosevelt and the new Metropolitan Hospital Center. The course will be open only to those who have registered in advance.

Copies of the program and further information concerning the postgraduate course may be obtained by writing to: American College of Gastroenterology, 33 West 60th Street, New York 23, New York.

AMERICAN PSYCHIATRIC ASSOCIATION

A seven-point fellowship program for psychiatrists, aimed at relieving the personnel problems of public mental hospitals, was announced recently by the American Psychiatric Association.

The fellowship program, drawing on a three-year grant of \$90,000 from the Smith, Kline & French Foundation of Philadelphia, has been broadened to cover medical students, teaching centers, general physicians, psychiatric authorities from this country and abroad, as well as state hospital psychiatrists.

Fellowships are awarded by the Smith, Kline & French Foundation Fellowship Committee, which is comprised of eight distinguished psychiatrists. These are: Kenneth E. Appel, M.D., chairman, professor and chairman of the Department of Psychiatry, University of Pennsylvania School of Medicine; Daniel Blain, M.D., medical director, American Psychiatric Association; Henry Brill, M.D., assistant commissioner, New York State Department of Mental Hygiene; Jacob E. Finesinger, M.D., professor and chairman of the Department of Psychiatry, University of Maryland School of Medicine; Francis J. Gerty, M.D., professor and chairman of the Department of Psychiatry, University of Illinois School of Medicine; David A. Young, M.D., commissioner of mental health for North Carolina; Seymour D. Vestermark, M.D., chief, Training and Standards Branch, National Institute of Mental Health; Robert G. Heath, M.D., professor and chairman of the Department of Psychiatry, Tulane University School of Medicine.

ACADEMY OF PSYCHOSOMATIC MEDICINE

The Academy of Psychosomatic Medicine will hold its third annual meeting at the Hotel Plaza, New York City on Thursday, Friday, and Saturday, October 4, 5, and 6, 1956. The program will be devoted to the subject of the "Psychosomatic Aspects of the General Practice of Medicine."

The meeting is open to all fellows, associate fellows, their guests, and interested physicians. There is no registration fee. For details concerning the program and the speakers, questions should be directed to the office of the secretary, Dr. Ethan Allen Brown, 75 Bay State Road, Boston, Massachusetts.

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS

Two hundred round table discussions and one hundred breakfast conferences will highlight the meetings of the American College of Obstetricians and Gynecologists at the fifth annual clinical meeting to be held at The Palmer House, Chicago, Illinois, on November 7-9, 1956. Leaders of these discussions have been carefully selected for their special knowledge of the particular subject and their ability to stimulate and guide the discussion.

Three panel discussions will be offered, one on Anesthesia in Obstetrics, one dealing with problems connected with adoption, and one on the Pathology of the Breast. Formal papers will be presented on "Prediabetic State," "Use of Hypotensive Drugs in Obstetrical Toxemia," and other subjects.

An innovation this year will be the "Consultation Hours" which will be held four times during the meeting. At each "Consultation Hour" a panel of three outstanding specialists will undertake to answer all questions presented to them before the session or while it is in progress.

Chairman of the college for North Carolina is Dr. John C. Burwell of Greensboro; vice chairman, Dr. Robert A. Ross of Chapel Hill.

AMERICAN CANCER SOCIETY

The American Cancer Society has announced as "a new day and a new dimension" in medical education on cell life an arrangement which makes available to medical schools thousands of feet of microscopic movies recording the dynamic aspects of cell life.

The film was produced by Dr. Charles M. Pomerat of the University of Texas Medical Branch, with Cancer Society support. Abbott Laboratories in Chicago have awarded \$30,000 to the Association of American Medical Colleges to finance the printing and distribution of selected portions to medical schools throughout the United States.

The arrangement brings to medical students everywhere an intimate view of living cells of many kinds. Most of the movies were made by phase contrast microscopy with, usually, eight frames being made a minute. Three hours in the life of a cell are run off on the screen in one minute.

The cinematographic techniques, pioneered by Dr. Pomerat, are intended to supplant archaic textbook representations of the cell appearing as dynamic as a doughnut. The films show that cell life is a ceaseless, surging series of activities, a constant groping in the environment for food, bitter battles with natural enemies and triumph over age and death by constant growth and division.

UNITED CEREBRAL PALSY

The United Cerebral Palsy Research and Educational Foundation, Inc., in its first public report issued August 20, describes in detail the broad research program in cerebral palsy, with emphasis on the mechanism and functions of the human brain, now being conducted in leading universities and research institutions throughout the nation.

Citing prevention, more effective treatment for the Cerebral Palsied, a basic understanding of the brain and a greater supply of professional and scientific manpower as the program's major objectives, Dr. Glidden L. Brooks, medical director, said 60 different grants are supporting the work of scientists and teachers in 45 universities and research institutions.

The report explains that the Foundation is not the only source of research and training funds in this field but that its program is designed to augment and supplement available support from the National Institute of Neurological Diseases and Blindness and other governmental and private sources.

HEALTH INSURANCE COUNCIL

Benefit payments under voluntary health insurance programs, designed to help people pay hospital and doctor bills, are running 20 per cent higher so far this year than in 1955, the Health Insurance Council announced August 15, in releasing the findings of its annual survey of the extent of voluntary health coverage in the United States. In 1955 such payments amounted to 2.5 billion dollars.

The increase in benefit payments, the council said, reflects both the progress made by the American people in bringing their health insurance protection to more nearly adequate levels, and the continued spread of ownership.

As of July 31, the council estimates, some 110 million persons, an all-time high, were covered by hospital insurance, while 94 million had surgical protection, 58 million had policies that cover regular medical expenses and seven million were insured against major medical expenses.

PAN AMERICAN SANITARY BUREAU

Leadership in the stimulation and co-ordination of research throughout the world on the problem of insect resistance to insecticides should be assumed by the World Health Organization (WHO) according to a recommendation made by a group of experts at the conclusion of a week of meetings in Geneva. Dr. S. W. Simmons (USA) was the group's chairman and Dr. C. H. Mofidi (Iran) vice-chairman.

This action high-lights WHO's urgent recommendation made in 1955 that malaria eradication programs be accelerated throughout the world to achieve their objective before insect resistance can further develop.

PAN AMERICAN MEDICAL ASSOCIATION

The next and tenth Inter-American Congress of the Pan American Medical Association will be held in Mexico City on November 18-22, 1957. The Congress will be held in sections covering all branches of medicine and surgery. There will be medical moving pictures, panel discussions, and scientific and technical exhibits. The Association has 42 medical sections including the new Section of General Practice.

UNITED STATES ATOMIC ENERGY COMMISSION

Award of twenty-four unclassified life science research contracts in the fields of medicine, biology and biophysics was announced recently by the United States Atomic Energy Commission. The contracts were awarded to universities and private institutions as part of the AEC's continuing policy of assisting and fostering research and development in fields related to atomic energy as specified in the Atomic Energy Act of 1954.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The United States Public Health Service has announced the appointment of 98 physicians, nurses, sanitary engineers, and pharmacists to the inactive reserve component of its commissioned officer corps.

Officers of the Commissioned Reserve are held in reserve for emergency service and trained to serve in critical situations affecting the health and well-being of large numbers of people. Such emergencies might involve the devastation of cities, extensive illness and death from man-made or naturally occurring disease outbreaks, or the disruption of community life caused by hurricanes, floods, earthquakes, and other widespread natural disasters.

* * *

Preliminary information on the operation of the new Federal Water Pollution Control Act has been released by Dr. Leroy E. Burney, Surgeon General of the Public Health Service, Department of Health, Education, and welfare.

Among other provisions, the new law authorizes federal grants to municipalities to assist them in the construction of necessary sewage treatment works as a pollution control, water conservation measure.

The Act also authorizes a five-year program of grants to States and to interstate water pollution control agencies to assist them in developing their own pollution control operations. A revised federal enforcement procedure for control of interstate pollution and greater federal support of water pollution research are among other important provisions of the Act.

* * *

A competitive examination for appointment of Medical Officers to the Regular Corps of the United States Public Health Service will be held in various places throughout the country on November 27, 28, 29, and 30, 1956.

Application forms may be obtained from the chief, Division of Personnel, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C. Completed application forms must be received in the Division of Personnel no later than October 13, 1956.

A new publication in the heart disease field, **Selected References on Cardiovascular Disease**, has just been issued by the Public Health Service, U. S. Department of Health, Education, and Welfare.

Compiled as a time-saving guide for nurses, this annotated bibliography will also be of use to medical students, nutritionists, health educators, social workers and others in the health field concerned with cardiovascular disease.

Listed as Public Health Service Publication No. 472, it is available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 25 cents a copy.

* * *

The **Journal of the National Cancer Institute** will be published monthly starting with Volume 17, Number 1, July, 1956. Thereafter, two volumes of six issues each will appear annually with Number 1 in July and January.

This change of schedule, after 16 years of bi-monthly publication, has been made to increase the publication outlet for investigators engaged in cancer research. Papers on basic research, clinical investigations, statistical studies, and critical reviews in cancer are invited.

The **Journal** may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Any changes in price for future volumes will be announced.

VETERANS ADMINISTRATION

Dr. Marjorie P. Wilson has been appointed chief of the Veterans Administration residency and internship division in the education service of the Department of Medicine and Surgery at Washington, D. C., VA announced.

She succeeds Dr. Jackson H. Friedlander who has been reassigned as manager of the VA hospital in Big Springs, Texas.

* * *

Dr. Ivan F. Bennett has been appointed chief of psychiatric research in the psychiatry and neurology service of Veterans Administration Central Office at Washington, D. C., VA announced.

He succeeds Dr. Richard L. Jenkins who has been reassigned as director of VA's psychiatric evaluation project (PEP), with headquarters in VA's Mt. Alto hospital in Washington.

Peacock Appointed Professional Service Representative for McNeil Laboratories

R. H. Peacock has been appointed professional service representative in this area by McNeil Laboratories, Inc., pharmaceutical firm of Philadelphia. He will serve physicians, pharmacists, hospital staff members and related professions, informing them of developments in medicinal therapy.

Mr. Peacock attended the University of North Carolina where he majored in chemistry and served in the Army.

The Month in Washington

In terms of actual health bills passed and sums of money appropriated, the Eighty-fourth Congress which ended just a few weeks in advance of party presidential conventions undoubtedly set some records. Measures ranged from the far-reaching program of disability cash payments to a bill for the commissioning of male nurses in the armed services.

In between are a wide variety of measures which, in the opinion of Secretary Folsom, Secretary of Health, Education, and Welfare, gives "promise of immediate and substantial progress on a wide front in the improvement of the nation's health."

Both Mr. Folsom and the President explored the fact that Congress had not acted on their plan for federal aid to medical schools, but Congress decided this was one of the subjects that needed more study before taking any further action. In addition Mr. Folsom expressed disappointment that nothing had been done on authority for pooling arrangements among small health insurance companies and the long dormant plan for a health reinsurance fund.

On medical research funds, the administration this session asked for the largest amount of money ever requested in one year. The appropriation finally voted was even larger, some \$170 million. On top of this, Congress in its final hours appropriated nearly \$80 million to carry out new legislation just passed.

Here are the high lights of major health bills approved by the eighty fourth Congress:

Social Security Amendments: Changes in the 21 year old social security law now include (1) Old Age and Survivors Insurance payments to disabled workers at age 50, paid from a "separate" fund; (2) extension of social security to some 250,000 dentists, lawyers, osteopaths and other self-employed persons; (3) lowering of retirement age for social security purposes for women from 65 to 62; (4) earmarked payments for medical care of public assistance recipients, and (5) increase of payroll deductions by one half of 1 per cent and three-eighths of 1 per cent for the self-employed.

Laboratory Research Facilities: The Hill-Bridges bill for \$90 million in construction grants over three years to public and non-

profit institutions to erect research facilities started out in the Senate as a bill to aid research in crippling and killing diseases but wound up for research in all "sciences related to health."

Health Amendments Act: The so-called little omnibus health bill provides for federal grants for training of public health specialists, professional nurses qualified for teaching and administrative jobs, and for practical nurses—plus a two-year extension beyond next July 1 of the 10 year old Hill-Burton hospital program, and special projects grants for mental health studies and demonstrations.

Medical Care for Military Dependents: A long-sought goal of the Defense Department was enactment of a permanent program of medical care for dependents of armed services personnel either in military hospitals and clinics or through private sources. It is scheduled to begin early in December.

National Library of Medicine: Another proposal long in the making was the re-establishment of the Armed Forces Medical Library as the National Library of Medicine. For administrative purposes, Congress put it under the Department of HEW, but left up to the 17-man board or regents the selection of site—in all likelihood in the Washington area.

Sickness Survey: Special and continuing surveys on the extent of illness and disability in the U. S., along with medical care being offered have been authorized—the first detailed study of its kind in over 20 years. The work will be done by the Public Health Service.

Water Pollution Control: The Public Health Service is authorized to make grants to states and communities to help in construction of sewage disposal plants at the rate of \$50 million a year for 10 years.

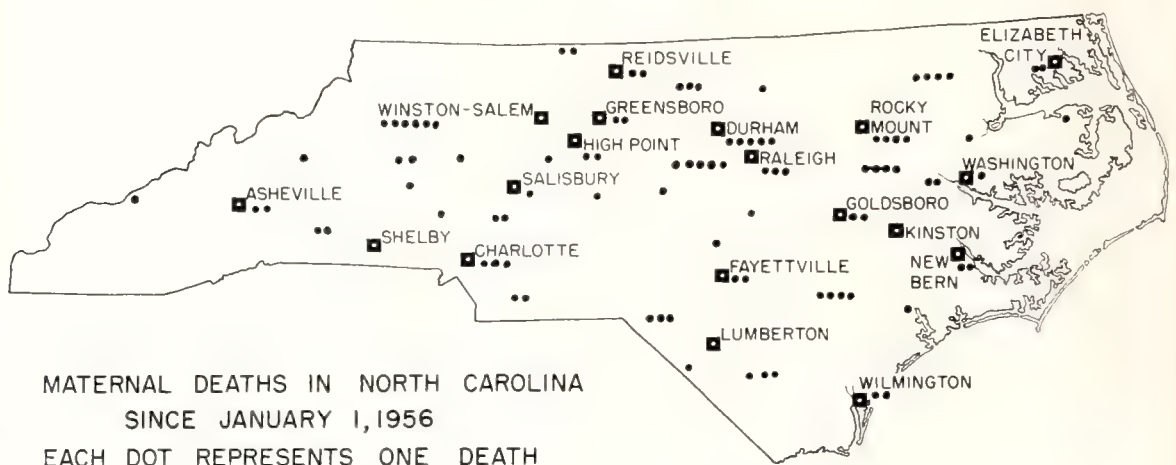
Some other measures signed into law by the President were: establishment of a mental health program for Alaska, budget increases for additional staff for the Food and Drug Administration along with a new headquarters building for modern laboratories, provision of medical care for employees and dependents of the State Department abroad in U. S. military facilities, a \$400,000 fund to finance the holding of the World Health Assembly in this country in 1958 (which is the tenth anniversary of the founding of the World Health Organization) and the commissioning in the armed services of osteopaths.

Notes:

The new surgeon general of the Public Health Service is Dr. Leroy E. Burney, a career officer in the commissioned corps and for 10 years commissioner of health for the state of Indiana. Until his nomination by the President he was deputy chief of the PHS Bureau of State Service. Dr. Burney received his medical degree from Indiana University.

The federal government withdrew from the allocation of the Salk poliomyelitis vaccine just 15 months after the first release of the vaccine, but federal grants to states to help finance inoculation programs continue.

In preparation for a national blood bank directory, the Joint Council with headquarters in Washington launched a nationwide survey September 1 of all blood banks.



NORTH CAROLINA

Medical Journal



Vol. 17 No. 10
October, 1956

IN THIS ISSUE:

THE INITIAL DIABETIC EPISODE IN CHILDHOOD — KELSEY

Infections of the respiratory tract respond readily to

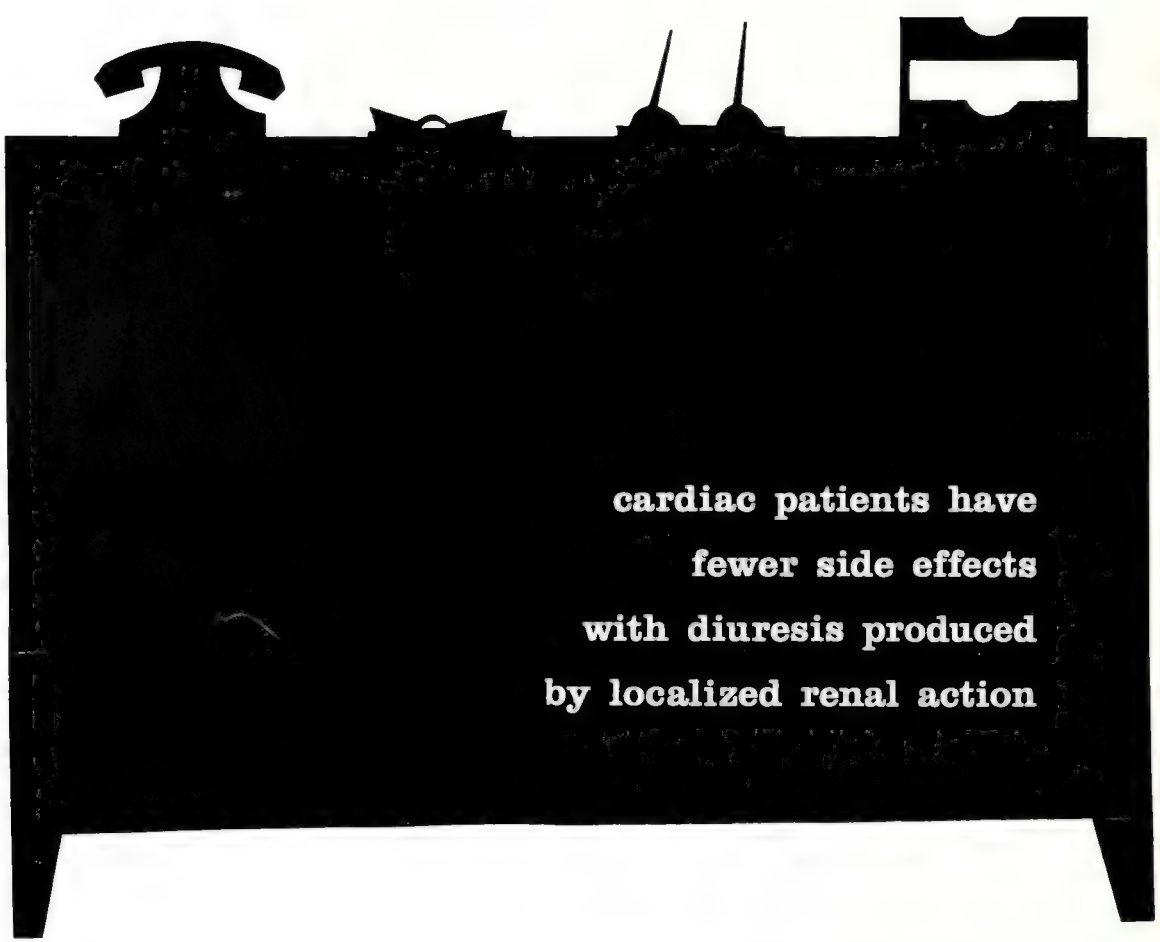
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For further information write:

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Malcolm D. Kemp, M.D. Medical Director

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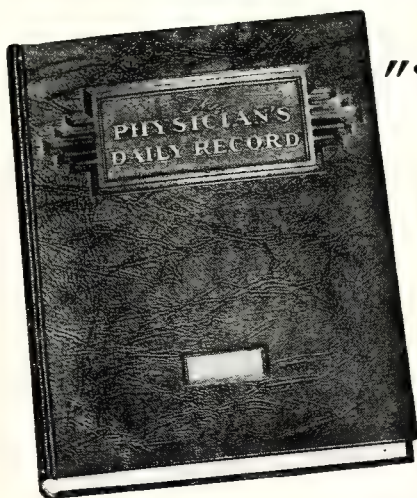
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NORTH CAROLINA MEDICAL JOURNAL

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THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

VOLUME 17

OCTOBER, 1956

NUMBER 10

The Management of the Initial Diabetic Episode in Childhood

WESTON M. KELSEY, M.D.

WINSTON-SALEM

The following discussion is based largely on observations of diabetic children seen on the pediatric service of the North Carolina Baptist Hospital in the last 10 years.

During this period 60 diabetic children have been admitted, an average of 6 per year. Of this group, 29 had received insulin prior to admission and 31 had not. There were 2 deaths in the series. One infant who had received large amounts of insulin before admission had severe hypoglycemia with a blood sugar too low to be determined accurately. He died without regaining consciousness. One 4 year old boy died six hours after admission. This death was unexplained, since to our best knowledge he had received prompt and adequate treatment, and at the time of death there was nothing in the physical examination or laboratory data, which were complete, to account for the respiratory paralysis which he suffered. The serum potassium was normal 30 minutes before death, and autopsy failed to reveal any cause for death.

The following discussion will be based on the 30 living diabetic children who were seen and treated for the first time (table 1).

Need for Hospitalization

There are three reasons why all children who are seen during their initial diabetic episode should be admitted to the hospital. The first is the extraordinary speed with which diabetic coma ensues. This is best illustrated by one patient who came into the hospital at 6:00 P. M. with a 2 plus sugar and no ketones in the urine. The admitting

Table 1
Age Distribution of 32 Patients Untreated Before Admission

Age (Years)	No. Patients
0-2	3
3-4	7
5-6	3
7-8	5
9-10	10
11-12	3

doctors felt safe in waiting until morning to complete the work-up. By 8 A. M. he was in profound coma, despite having received insulin on the day of admission. One other patient without ketonuria by history was admitted 18 hours later in profound coma. Since ketone bodies are found in the urine of almost all diabetic children when they are first seen, it is imperative to treat this situation promptly, as they may be beyond help if treatment is delayed.

The speed with which diabetes itself develops is well illustrated by a 3 year old boy whose father had had diabetes for one year prior to this boy's admission. Because of the parents' concern, urine sugar determinations had been done weekly on the son, with negative results. In the course of one week the urine sugar rose from 0 to 4 plus. The diagnosis was made so promptly that he is one of two diabetic children whom we have seen in the initial episode without ketonuria. The other case was diagnosed by the child's parents under the same circumstances after the urine sugar had risen from 0 to 4 plus within a week.

The second reason for admitting these children to the hospital is the peculiar phenomenon of the development of insulin

Read before the Section on Pediatrics, Medical Society of the State of North Carolina, May 2, 1956.

From the Department of Pediatrics, Bowman Gray School of Medicine of Wake Forest College, and the North Carolina Baptist Hospital, Winston-Salem.

Table 2

Insulin Requirements Following Initial Therapy

No. Patients	Requirements (units)	Duration of Initial Therapy (days)
28	Less than 30	30
23	Less than 30	14
22	Less than 20	14
9	Less than 20	17
6	Less than 30	4
19	Less than 10	30

sensitivity following the initial therapy. These patients usually require from 40 to 80 units daily for the first three or four days. At varying times after this period they suddenly need much less insulin. If they are being treated at home, with amounts of insulin adequate to manage the initial phase, they are almost certain to have insulin shock during the latter part of the period.

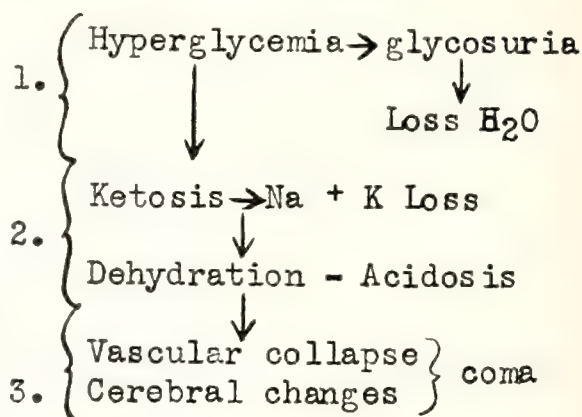
The insulin requirement continues to drop, so that a number of the patients could be taken off insulin within two to four weeks after the initial treatment. For psychiatric reasons we never do this. It should be emphasized that from six months to a year after the initial treatment the insulin requirement of nearly all these children rise.

A rough analysis of these data is presented in table 2. The important data here show that approximately one third of the patients within one week required less than 20 units of insulin; more than that would have resulted in insulin shock. A fifth of the patients tended to go into shock by the fourth day of treatment. Lastly, only one of the entire group failed to show a decrease in the initial insulin requirement. Without hospitalization it is almost impossible to manage the first days of treatment adequately without causing hypoglycemic shock later in the course of therapy.

The third reason for hospitalization is that it allows time for educating both the child and the parents in home care. This is the most important phase of the whole management of the diabetic child. Any child who is rushed out of the hospital in order to save money usually gets into trouble because the physician has not had time to educate the whole family adequately as to his care.

Classification

The treatment of these children depends on the stage of the disease at the time of admission. Diabetes can be divided into

Table 3
Stages of Diabetes

three stages, as illustrated in table 3. The first is rarely seen in a child being presented for the first time. The diagnosis is now being made most commonly in the second stage. Probably this is because more physicians are aware of the possibility of diabetes in childhood. The accepted statement that a majority of these children will reach the physician in coma is probably no longer true. The only general principle of therapy to be emphasized, regardless of which stage the patient is in, is the need for insulin. Table 3 shows clearly that, since the disease starts with either absolute or relative insulin lack, the whole chain reaction cannot be stopped or corrected until insulin is given. All diabetic patients should receive crystalline insulin in their first treatment, and if in collapse should receive it intravenously. There is much argument about the amount of insulin to be used initially. Probably a middle course is wise. In general, 2 units per kg. of body weight for the initial injection is a safe one⁽¹⁾. Subsequent doses will depend on the patient's status and laboratory findings. As will be seen later, this may depend upon his glucose intake.

Stage I

The treatment in stage I is extremely simple—prompt institution of a diabetic diet and insulin. Even though their cases seem mild, they usually require 40 units or more for the first few days. In this extremely mild group, which is seen so rarely, one has to be particularly cautious regarding insulin shock. Their insulin requirement as a rule drops fairly early and, when it does, falls precipitously. If pediatric supervision is

poor, it is probably wise to give small doses frequently in order to avoid shock which might not be recognized and corrected by an inexperienced nurse.

Stage II

In stage II the patient has become more seriously dehydrated and is acidotic. He has also had a significant loss of sodium and potassium. This group should be divided into two categories: those able to take oral fluids, and those who are vomiting. Children who are ketotic but conscious and are able to take and retain oral fluids can be treated adequately without intravenous medication. We prefer to start with orange juice or a carbonated beverage containing 10 per cent sugar. They are given insulin immediately, usually about 2 units per kg., and an additional dose with each glass of liquid. Since one unit of insulin covers approximately 2 Gm. of glucose, theoretically a full glass of orange juice or a 10 per cent carbonated beverage would require approximately 12 units of insulin. Since at this stage the insulin is not utilized immediately and there is preexisting hyperglycemia, we usually give 20 units of crystalline insulin with each glass of liquid. This regimen is continued until the patient has been free of ketonuria for approximately 12 hours, at which time he is treated as in stage I. Orange juice is particularly satisfactory at this period since it contains glucose, which permits the continuation of insulin therapy without fear of hypoglycemia. It also contains potassium and has an alkaline ash residue which will aid in correcting the existing cation (sodium) deficit. Sometimes the carbonated beverage is better tolerated, in which case the addition of potassium chloride to the beverage may help repair the existing electrolyte deficit.

If the patient is in stage II but is vomiting, insulin is given again as soon as the diagnosis is established and a gastric lavage is done. At the end of the lavage, we usually leave some electrolyte solution in the stomach. It probably makes little difference what solution is used, but since a small amount of sodium bicarbonate is harmless, this is usually chosen.

There is much argument about the program of intravenous fluid therapy⁽²⁾. Our usual procedure is to administer the electrolyte solution first. This is instilled for 60 to 90 minutes at a rate of 2 to 3 drops per kg.

per minute. We feel that it should never be continued beyond the first hour and a half of therapy. The electrolyte is used in order to aid promptly in restoring the vascular volume so that renal function, which may be depressed with dehydration, is rapidly restored to normal. Glucose solution is not given at first because the blood glucose level is already above the renal threshold and additional amounts are liable to cause further loss of water because of its osmotic effect. Solutions containing large amounts of potassium are not given, because frequently the serum potassium is elevated when these patients are first seen. Concentrated potassium solutions should be withheld until one feels that renal function is normal.

Many authorities disagree about the use of sodium lactate solutions⁽³⁾. In favor of their use is the fairly rapid correction of the serum pH. It is also valuable in correcting the sodium deficit and hence the vascular volume. Against its use in the usual calculations is the tendency to produce post-acidotic alkalosis. Large amounts will also aggravate the existing intracellular potassium deficit. Lastly, there is some question as to how rapidly the lactate ion is metabolized during the first few hours of therapy. Therefore, in this first infusion we usually give Ringer's solution or sodium chloride, plus a moderate amount of sodium lactate. The solution frequently used is two parts of Ringer's solution with one part of sixth molar sodium lactate solution.

After the initial electrolyte infusion it is extremely important to remember that glucose must be added to the infusate, since at this time the insulin may have lowered the blood glucose to hypoglycemic levels and one arrives at the paradox of having a patient with hypoglycemia and ketosis and being unable to correct the ketosis with insulin because of fear of insulin shock. A more practical point, frequently forgotten by the academic person, is that many practicing physicians cannot stay with their diabetic patients, and if glucose is not given continuously, it will not be safe to give insulin in the amounts necessary for controlling the disease. The reason why glucose must be added fairly early in the therapeutic regimen is illustrated in table 4. In spite of this knowledge we recently had a child in diabetic coma, who, while receiving a 2½ per cent solution of glucose intravenously,

Table 4
Need for Glucose Administration

Weight=30 kg.
Extracellular fluid approximately 6.0 liters
Glucose=500 mg. per 100 cc.
Total glucose=30 gm.
Theoretical insulin=15.0 units

developed hypoglycemia. Recently we also saw a child, mentioned previously, who died in hypoglycemia because of the failure of the local physicians to realize the importance of administering glucose in conjunction with adequate doses of insulin. At the end of this initial electrolyte period, therefore, a safe solution to use is 10 per cent glucose mixed with equal parts of Ringer's solution. This solution, containing 5 per cent glucose and $\frac{1}{2}$ isotonic electrolyte solution, is kept up four to six hours; then 5 per cent glucose with potassium chloride is added to make the concentration 15 to 30 milli-equivalents per liter. This combination is continued until the ketonuria has been corrected for at least 12 hours. In a great majority of the initially treated diabetic patients, the ketonuria clears four to eight hours after the start of therapy. During this time approximately 25 units of crystalline insulin is given for each liter of 5 per cent glucose. This method is outlined in table 5.

Stage III

Stage III is quite similar to the vomiting type of stage II. When the patient has reached stage III, there is abundant evidence that he is on the verge of irreversible cerebral damage⁽⁴⁾. For this reason it is probably wise for all comatose patients to receive oxygen so that a maximal oxygen supply will be presented for cerebral metabolism. Secondly, it is occasionally quite important to restore the blood volume to normal rapidly so that an adequate cerebral blood flow is maintained. In any patient with severe vascular collapse manifested by a thready peripheral pulse and hypotension, it may be wise to use a more efficient blood

Table 5
Stage Two: Vomiting

- I. Insulin
2 units per kilogram immediately
10 units every hour until ketonuria clears
- II. Initial infusion 60-90 minutes
Ringer's solution plus $\frac{1}{6}$ molar sodium lactate 2:1 at 2-3 drops per kilogram per minute
- III. 10% dextrose in water plus Ringer's solution (1:1) 4-6 hours
- IV. 5% dextrose in water plus potassium chloride 20-30 mEq. per liter

volume expander than an electrolyte solution. If the hematocrit is extremely high, it may be wise to use plasma or dextran. If the hematocrit is low, whole blood is the expander of choice.

It is still extremely dubious whether these more active measures will change the mortality when the patient has actually become comatose. One should remember that the definition of coma is failure to respond to pin prick. There is considerable evidence that no matter what form of therapy is used approximately 10 per cent of the comatose patients will die. Nevertheless one should realize that this is an extraordinarily serious situation and that the additional oxygen, plus the more prompt restoration of cerebral blood flow, may possibly tide the patient over severe cerebral depression.

Summary

Certain points in the management of the initial diabetic episode have been discussed. Emphasis has been placed on the need for the hospitalization of such a patient. An outline for the management of the patient in this period has been presented.

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NOTICE

Dr. Paul Dudley White's address on "The Ways of Life and Heart Disease," which was published last month in the NORTH CAROLINA MEDICAL JOURNAL, was also given in substance before the Harvard Medical Alumni Association on May 31, 1956, and will be published in the Harvard Medical Alumni Bulletin. We regret the omission of this information at the time of publication—Ed.

PANEL DISCUSSION ON INDICATIONS FOR CESAREAN SECTION

James F. Donnelly, M.D., Moderator*

General Introduction—

LEWIS S. RATHBUN, M.D.

ASHEVILLE

Since Dr. Fesse Bennett performed the first successful cesarean section in America in 1794, the indications for the operation have undergone great changes. Dr. Bennett operated on his own wife after she had been in labor for three days. It was a foregone conclusion that she would die, but he heeded her entreaties to save the baby. By some miracle she also survived.

We see, then, that the first cesarean section was done to save the baby without hope for the mother. As surgical skill increased and the chance of maternal survival broadened, so did the indications. Today we have a relatively safe operation for which there are many indications.

For ease of definition I should like to divide the indications for cesarean section into three broad categories: obstetric, medical, and surgical.

Obstetric Indications

For a long time about the only indication for the operation was cephalopelvic disproportion. This still accounts for a large percentage of cesarean sections. In this group of cases, I believe, the procedure should be done only after a trial of labor, preferably with ruptured membranes. It is a gifted person indeed who can tell without an adequate test of labor which borderline case will, and which will not, result in delivery.

Whenever possible, x-ray pelvimetry should be employed to aid in making the decision. It should be stressed that x-ray is an aid only. Except in extreme cases it alone cannot determine whether or not cephalopelvic disproportion exists. X-ray measures the passage only and gives only a very rough estimate of the passenger. It

cannot evaluate the character or efficiency of labor.

Bleeding in the last trimester of pregnancy was the indication for an increasing number of cesarean sections as the operation became safer and replacement of blood easier.

Certainly cesarean section is the method of choice in central placenta praevia. It should also be employed in most cases of partial praevia. In cases of marginal implantation vaginal delivery can be accomplished in some patients with safety for both mother and child. This is especially likely to be true of multiparous women who are in labor when the diagnosis is made.

Cesarean section may be indicated in cases of bleeding due to premature separation, although the decision is somewhat less clear cut. Here, I believe, an estimate should be made of how long it will take the patient to deliver vaginally. In a primipara with a long closed cervix and any appreciable degree of separation, cesarean section is probably indicated. Certainly the welfare of the baby is best served by operating. In a woman who can be reasonably expected to deliver within an hour or two, however, it would seem better to me to accomplish delivery from below, even in a case of abruptio placenta.

Cesarean section has a definite place in the treatment of some severe toxemias. Once these patients are brought under medical control, they should be delivered by the easiest possible means. In a certain number of cases with long cervixes, a section is much easier on the patient than would be an attempted induction with bags, boogies, and so forth, which may be expected to take several days and then lead to prolonged labor. It should be stressed that cesarean section is not employed to treat the toxemia. It should be used only when induction of labor promises to be difficult.

Presented before the Section on Obstetrics and Gynecology, Medical Society of the State of North Carolina, Pinehurst, May 1, 1956.

*Chairman of the Section on Obstetrics and Gynecology.

It is sometimes difficult to decide when to do a section in a case of breech presentation in a primipara. Certainly sections are not necessary in many such cases. But who among us has not gotten partly through a breech delivery and longed to be in the operating room instead of having to cope with the problem of a tight-fitting after-coming head? On the other hand, it is equally disconcerting to deliver a breech by section and find a smaller than average baby whom even the student nurses know could have been safely delivered from below. I think that x-ray pelvimetry can be of great help in selecting the cases which require section. If x-ray shows a smaller than average pelvis and if an average or larger sized baby is anticipated, I feel that section is justified.

Transverse lie of the fetus is almost always a reason for cesarean section, no matter what the parity.

The question of whether or not to do repeat sections routinely can cause an argument in any company. Some believe "once a section, always a section," while others state that all patients should have a good test of labor before a repeat operation is performed. In allowing a test of labor one must certainly consider that a ruptured scar may prove a calamity for both the mother and infant. I feel that in a few carefully selected cases, however, vaginal delivery is preferable. If the mother goes into labor with the infant's head deeply engaged, if the cervix is thin, and if labor progresses rapidly, I see no reason why delivery should not be accomplished from below. The percentage of cases that will meet these criteria is relatively small, and most patients will have repeat operations.

Prolonged labor, *per se*, may be an indication for section. Occasionally a patient with a normal pelvis and baby continues in labor hour after hour without progress. A small percentage of these patients will lose their babies after 24 hours, and a higher percentage after 36 hours. I think that in a small number of these cases sections should be done after both rest and stimulation have proved of no avail. One should be certain, however, that the patient is in labor. I suspect that a great many sections are done because of the patients' failure to progress when they are really in false labor.

Before we leave the obstetric indications

I should like to say a word of warning. I see absolutely no reason for routinely employing sections in elderly primiparas. I believe that these patients should be treated as are their younger sisters. Very few will require section for any reason.

Medical Indications

The most important medical reason for cesarean section is diabetes. Section is probably not necessary in all diabetic women. Delivery at eight months' gestation, however, seems to yield very good results in a disease which is complicated by a high incidence of large babies, stillbirths, and toxemia. Delivery at that stage is usually best done by section.

Patients with various types of malignancy may require section. In malignancy of the cervix the procedure may be necessary because of mechanical obstruction. It may also be indicated to secure a live baby in a patient who is in the terminal stages of cancer.

There are several medical conditions which do not require sections. There is ample evidence that the cardiac patient tolerates labor much better than she does surgery. Sections should not be done in such cases except for obstetric reasons.

Tuberculosis is not an indication for cesarean section.

Patients with acute poliomyelitis tolerate section very poorly and preferably should be delivered vaginally. Muscle deformities from poliomyelitis almost never affect childbearing.

Surgical Indications

Patients who have had previous operations rarely require cesarean section on this basis alone. Little is known about the effect of pelvic delivery on a previous pelvic repair, since no physician sees many of these cases. I feel that cesarean section is justified in the patient who has had a repair. It is undesirable to run the risk of recurrence if it can be avoided. Upper abdominal or chest surgery is not a contraindication to pelvic delivery.

Conclusion

While the mortality associated with cesarean section is low, it is higher than that associated with pelvic delivery. Moreover, the patient is left with a uterine scar which may lead to serious complications during subsequent pregnancies. Hence the decision to operate should not be made lightly.

The Viewpoint of the Pediatrician

THADDEUS B. WEBSTER, M.D.

LUMBERTON

Whenever one discusses fetal mortality in association with cesarean section, he should examine cautiously the basis for his statistics. Are the statistics predominantly gross or have they been adjusted or corrected with regard to such factors as repeat sections. In a hospital with a high rate of repeat sections or in which the criteria for cesarean section are lax, the fetal salvage rate is likely to be considerably better. In nonelective cesarean sections the maternal complications frequently determine the survival of the infant.

The gross fetal mortality associated with cesarean section varies from 5 to 10 per cent. On the other hand in repeat sections the mortality rate has varied from 1.5 to 5 per cent. The incidence of premature delivery in repeat sections is considerably higher than would be expected—about 8 per cent.

Prematurity and pulmonary hyaline membrane disease account for a large number of the neonatal deaths in cases of cesarean section. In the presence of a maternal complication such as hemorrhage, premature delivery is difficult to avoid. In the case of elective or repeat sections, every effort should be made to carry the infant to term. Routine x-ray studies for fetal maturity may be indicated.

The etiology of pulmonary hyaline membrane is unknown, but many pediatricians and pathologists feel that aspiration of amniotic fluid is an important factor. There is some indication that this condition is secondary to vascular congestion, since it also occurs in adults under certain circumstances. The administration of high concentrations of oxygen was thought to be a factor at one time, but is no longer considered significant. Hyaline membrane disease is particularly distressing, since the infant may appear perfectly normal at birth, then 12 hours later experience res-

piratory difficulty which progresses rapidly. The infant usually succumbs. A characteristic pathologic picture is found on autopsy. Infants delivered by cesarean section have a much higher incidence of pulmonary hyaline membrane than infants delivered vaginally, even in the absence of maternal complication.

The infant delivered by cesarean section demands closer attention than other babies. Gastric suction on all infants delivered by section has resulted in a striking reduction of neonatal deaths. The reason is not clear, but it is presumed that the infant ingests large amounts of amniotic fluid which may be regurgitated and aspirated. Most pediatricians accept the routine use of antibiotics for infants delivered after certain maternal complications such as prolonged labor and prolonged rupture of the membranes.

Any clinical evidence of pulmonary hyaline membrane likewise indicates the use of antibiotics, since pneumonia is common in these infants. Intrauterine asphyxia should be avoided wherever possible, and extrauterine asphyxia as manifested by cyanosis should be immediately treated with oxygen. In the absence of cyanosis, oxygen is not indicated for the baby delivered by cesarean section or for any other newborn. If pulmonary hyaline disease is suspected, the use of mists appears to be indicated. Infants with this condition have extremely rapid respiratory rates and soon become dehydrated unless adequate vapor is present. The addition of detergents to the mists is of no value. The time-honored custom of placing the infant in an incubator with the head lowered should be abandoned on both clinical and pathologic grounds. The elevation of the head and adequate removal of bronchial secretions appear preferable.

* * *

The Viewpoint of the General Practitioner

CLAUDE MCNEILL, M.D.

ELKIN

The obstetric staff of Hugh Chatham Memorial Hospital in Elkin consists of five general practitioners. There is no house staff, and much of the responsibility for the care of the patient during labor rests with the nursing staff. Normally one nurse is responsible for each division of the obstetric floor, but at times, because of the shortage of nurses, a single nurse may have the responsibility for the patients in labor, those in the delivery room, and for the nursery. The nursing staff is supplemented by licensed practical nurses and nurses' aides. Under these circumstances care of the obstetric patient is seldom ideal. All cesarean sections are performed by a general surgeon, assisted by the general practitioner who has conducted the prenatal care. A consultation is always required. Classic cesarean section is routine. A trained nurse anesthetist or a physician trained in anesthesia is always available for the operation.

The indications for cesarean section conform to standard teaching. Repeat sections are the unvarying rule. The procedure is carried out at calculated term, as soon as labor begins, or when the membranes rupture. The management of premature separation of the placenta is highly individualized, and cesarean section is chosen when the blood loss is considered

a threat and the cervix is unfavorable for induction. Occasionally the limitation of available blood enters into the decision. Absence of progress in the presence of a posterior position of the occiput, with adequate uterine contractions, is felt to be a sufficient indication for section. Placenta praevia is usually treated conservatively, with the exception of total praevia, for which cesarean section is always performed. A prolapsed pulsating cord in the presence of incomplete dilatation of the cervix is considered an indication for section. Toxemia of pregnancy is occasionally managed by cesarean section, although the majority of toxemia patients are treated medically, and when delivery is indicated, labor is induced by repeated intravenous injections of Pitocin.

Compound presentations in the presence of incomplete dilatation of the cervix is considered an adequate indication for section. Cephalopelvic disproportion is determined by adequate x-ray studies and clinical pelvic measurements. Patients with suspected or borderline cephalopelvic disproportion are permitted to continue in labor as long as progress is normal. Age in a primipara and uterine inertia are not considered indications unless other complications exist.

* * *

The Viewpoint of the General Surgeon

W. W. KITCHIN, M.D.

CLINTON

My purpose on this panel is to present the viewpoint of a general surgeon who finds it necessary to act as consultant and to perform cesarean sections in our community. The organization of our hospital is quite similar to that outlined by Dr. McNeill. Our criteria for cesarean section, however, differ considerably from his. As the consultant, I make a complete examination of the patient before rendering an opinion as to the advisability of section. I also reserve the right to refuse to do one if I feel justified. Many times we surgeons are

faced with conditions which the general practitioner regards as indications for section. After we examine the patient and discuss our views with him, however, he may change his mind. Frequently the general practitioner is fearful of passing up the opportunity to have a section done at the best time. On the other hand he may be under considerable pressure from the patient and her family, and require moral support from a consultant.

I think you can all see that it would be most difficult if one of our general prac-

tioners persisted in his viewpoint that vaginal delivery was unsafe. Admittedly we do not know as much about obstetrics as they do. In practice, none of our physicians

has ever insisted upon a section that I felt was not justified. In general the referring physician and the consultant have agreed with respect to the management of the case.

* * *

The Viewpoint of the Obstetrician

F. BAYARD CARTER, M.D.

DURHAM

I think it is absurd to predict, as is done in certain metropolitan areas, that we should have a cesarean section rate of 7 to 10 per cent. Many cesarean sections are done without justification, and conversely some that should have been performed were not.

Concerning the statistics, I am impressed with the fact that the cesarean section rate is higher in private than in ward patients. The usual explanation is that private patients are more intelligent and that the physicians handling them are more skilled and better understand the difficulties that may arise. I don't say that discrepancies between private and ward rates necessarily imply bad obstetric practice, but I do think that such data should be scrutinized.

At Duke Hospital the private and ward rates in the year under study were the same. On the private service not a single cesarean section was performed on a primigravida. All the sections done on private patients that year were repeat sections. At least 30 per cent of the infants in these cases might have been delivered vaginally, safely and adequately, in my own opinion.

If the incidence of cesarean section rises or continues at its present level, and if previous section is considered as an inevitable indication for doing another, the incidence of this operation will progressively increase. A careful evaluation of the repeat sections is in order.

In this connection, it should be pointed out that many uterine ruptures from previous sections occur prior to labor.

The problem of uterine inertia is certainly open to question. It is my firm conviction that much of the cephalopelvic disproportion is nothing more than faulty labor. I can see no reason to subject a woman who has had a pelvic repair to cesarean section.

I firmly believe that too many sections

are done in cases of premature separation of the placenta. It profits little to deliver premature babies by section only to have them die shortly thereafter, nor can I see any indication for subjecting the mother to the additional hazards associated with cesarean section in view of the extremely poor prognosis for the infant.

In conclusion, any consideration of the incidence of cesarean section should include a comparison of the ward material with the private data. It should also include a review of all perinatal deaths and a comparison of the results of cesarean section with those patients who were not sectioned, but who perhaps should have been.

* * *

FRANK R. LOCK, M.D.

WINSTON-SALEM

Consultation is usually required prior to cesarean section—a fact that some physicians resent. We should realize that our emotional involvement with the obstetric patient at times alters our judgment, as it would if the patient were one of our own family.

Physicians who practice obstetrics should have no reason to consider convenience in relation to their work. Repeat and elective cesarean sections are often arranged on the basis of convenience. The only virtue in performing elective cesarean section on the basis of a due date is to provide a time which will not disturb the nursing and operating room staffs, or interrupt the physician's schedule. It is, therefore, not remarkable that the incidence of prematurity is extremely high. The attendant neonatal mortality could be described as regrettable, if not disgraceful. In a vaginal delivery, no appreciable attention is paid to the due date. As Dr. Carter stated, rupture of the uterus following a previous cesarean section may occur at any time from early pregnancy right up to the period of advanced labor, with many cases occurring prior to the onset of labor. There is very

little conclusive evidence that labor is a particularly important factor. I am convinced that the preferred time of elective section in patients who have had previous sections is at the onset of labor. We have no right to set a time and abide by it in performing a section.

It is difficult to evaluate cephalopelvic disproportion in the presence of a breech presentation. Although we cannot allow a test of labor to continue until the fetal head enters the pelvis, certainly we can get some idea of the course of labor. Conversely, we can get some clues as to the presence of cephalopelvic disproportion by the course and character of labor. Whether or not fetal distress is sufficient indication for cesarean section is debatable. I am not convinced of the reliability of any of the signs which we consider indications of fetal embarrassment. Frequently these signs are transient. If they persist, the damage to the infant is already done and chances for a normal baby by cesarean section are relatively low. For this reason we have not followed a policy of delivery by cesarean section because of fetal embarrassment.

* * *

ROBERT A. ROSS, M.D.

CHAPEL HILL

We appear to be much more concerned with writing down or labelling indications for cesarean section than with the actual reasoning involved. How we arrive at the decision to do a section is the important thing, and that requires a high degree of intellectual honesty.

In the selection of cases, such incidentals as tubal ligation must not be taken into consideration. During the operation the surgeon may feel that while the abdomen is open he might as well take out the appendix. I heard recently of a hospital in which appendectomy was done routinely in association with cesarean section, and I am sure that the maternal mortality death which resulted is bound to Christianize the thinking of the individual.

I agree with Dr. Carter and Dr. Lock in respect to fetal distress; however, I think one must consider the condition of the mother herself. In a diabetic mother with a rising uric acid and other signs of toxemia, both fetal and maternal distress exist. In dealing with so-called premature separation of the placenta, it should be re-

membered that it is extremely difficult, if not impossible, to differentiate it from rupture of the marginal sinus. Under these circumstances many unnecessary operations for premature separation of the placenta have been and will be carried out.

Discussion

Dr. Donnelly: Dr. McNeill, do you think the surgeon-consultant should render an opinion on the advisability of cesarean section?

Dr. McNeill: We have looked upon our surgeon as an excellent adviser and think he should state his opinion.

Dr. Hunter Jones (Charlotte): In reviewing the study of the indications for cesarean section, I have noted a number of differences between the statistics compiled from other North Carolina hospitals and those for the Charlotte Memorial Hospital. For instance, repeat sections accounted for 41 per cent of the sections done in others against 31 per cent in ours. Cephalopelvic disproportion as an indication accounted for 29 per cent at Charlotte Memorial—considerably more than the 19 per cent reported by the hospitals studied. We feel that cesarean section should replace the difficult forceps and traumatic deliveries—breech or vertex. These are the major differences. At Charlotte Memorial Hospital the cesarean section rate for the past two years has been decreasing, and in 1954 it was 3.6 as compared to 5.6 in 1952. The preventable fetal deaths at term were less than 1 per cent, and difficult operative deliveries were slightly over 1 per cent.

D'Esopo, at Sloane Hospital, proposed that a section rate of 6 per cent would reduce the occurrence of traumatic deliveries to 1 per cent or less, and keep the fetal deaths to 1 per cent or less. At Charlotte Memorial Hospital during a three-year period—1953 through 1955—there were a total of 221 cesarean sections, with an uncorrected fetal mortality of 4.2 per cent; corrected for babies at term it was zero. The neonatal mortality rate at Charlotte Memorial compared favorably with that at Johns Hopkins and Margaret Hague Hospitals.

Dr. James Crowell (Charlotte): There have been several articles recently on the use of trial forceps in certain cases of cephalopelvic disproportion. We have tried this method in some cases at Charlotte Hospital. In the event that forceps appear unnecessarily difficult once the blades are applied, a cesarean section is felt to be indicated. With the use of antibiotics and other facilities, the procedure is not too dangerous from the maternal viewpoint.

Dr. Carter: One point which has not been discussed is the maternal mortality. In one report which showed an extremely conservative approach to cesarean section, the maternal mortality was 2 per cent—an appreciable rate in obstetrics. One other thing I deplore represents a lost art in obstetrics. For instance, given a patient (*para vi*), who is completely dilated, with membranes intact,

and with a transverse lie and an adequate pelvis, some obstetricians would automatically perform a cesarean section. Certainly, if we have adequate anesthesia and any obstetric skill, there is no more danger in a version performed by a competent operator than in a cesarean section done by someone who is incompetent. I am also deadily opposed to the routine administration of shotgun antibiotics, either to mother or baby. There is nothing wrong with the operation of cesarean section; what is wrong is the indications for which it is used.

Dr. Kitchen: I would like to present an actual case for discussion. The patient was para ii; both pregnancies had been normal, as was the prenatal course until two weeks before the estimated date of confinement. The patient then began to have pain and vaginal bleeding. She was brought to the hospital bleeding profusely; the blood pressure was 100, and there was some respiratory distress. Blood was infused rapidly, and shortly thereafter a cesarean section was performed.

Dr. Lock: I think that bleeding of that degree should always be watched. It presents a problem which must be met in one way or another. The size of the fetus and the amount of available blood for immediate use should be taken into consideration. A vaginal examination should be carried out to determine the cause of the bleeding. For instance, a partial placenta praevia might indicate simple rupture of the membranes.

Dr. James Lounsbury (Wilmington): I am a little horrified to learn that uterine inertia was considered an indication for cesarean section in 4 per cent of the patients. What has happened to our

ability to rest and hydrate these patients?

Dr. Ross. Dr. Marchetti has stated that uterine inertia is the most common indication for cesarean section.

Dr. Rathbun: Dr. Lock pointed out that you can tell something about cephalopelvic disproportion in breech presentations by the character of the labor. I think that quite often unsatisfactory labor is the result of a relative disproportion. I would like to say also that a physician who can do a good version can probably also do a good cesarean section. Unless the physician is absolutely sure that he can do a good version, it is extremely dangerous from the standpoint of both mother and child, for him to do one.

Dr. Carter: I agree completely, but I think a cesarean section is also dangerous. Good medical practice is predicated on a man's conscience. Every doctor knows what he is trained to do and what he is not trained to do. Evaluation of a patient is purely a matter of conscience and experience. I would not criticize anybody for doing a cesarean section for an occiput posterior at the inlet; I would not condemn anybody for doing three or four sections out of 15 cases of transverse lie; but I would question his competency if he does 15 cesarean sections in an equal number of cases.

Dr. Rathbun: In conclusion I want to say a word about the mother's health. Easy labor may well damage pelvic tissue as much or more than some hard labors. The patient subjected to cesarean section is much sicker postoperatively. I am not convinced that we are doing the mothers a favor by shortening or eliminating labor by means of cesarean section.

Acute Peripheral Arterial Occlusion

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In the practice of medicine there are relatively few emergencies in which every hour of delay is of great importance to the patient's welfare. Acute arterial occlusion is such an emergency. Frequently it is not so much the patient's life which is at stake, as it is the function of the involved extremity. It is important that every physician have a previously planned program of treatment which may be instituted immediately.

Etiology

There are two principal causes of acute

arterial occlusion: arterial embolism and arterial thrombosis.

Arterial embolism

In the majority of cases the source of the embolus is intracardiac. In 80 to 90 per cent auricular fibrillation is present. Auricular fibrillation is most commonly associated with chronic rheumatic endocarditis or coronary arteriosclerotic heart disease. A thrombus may form on the endocardium at the site of an acute myocardial infarction or in a heart failing from any cause. Emboli may be detached from the mitral and aortic valves in cases of acute and subacute bacterial valvulitis. Less commonly, an embolus may arise from

a thrombus which had occurred in an aortic aneurysm, on an atherosclerotic plaque, or on an area of inflammation of the arterial wall. These emboli may occasionally be initiated by varying degrees of trauma. Very infrequently the embolus may arise from a thrombus in a vein and reach the peripheral artery through an interauricular or interventricular septal defect⁽¹⁾. Emboli may rarely be composed of tumor cells⁽²⁾.

Arterial thrombosis

Acute thrombosis most frequently occurs at the site of previous arterial damage in arteriosclerosis obliterans and Buerger's disease. A thrombus may form secondary to injury of an artery in cases of cervical rib and scalenus anticus syndrome or result from external trauma. It is also found in association with other conditions such as polycythemia vera, severe debilitating or infectious diseases, heart failure, postoperative states, and thrombophilia⁽³⁾. Occasionally the thrombosis may be of undetermined origin. In the majority of these conditions there is some previous damage to the vessel wall, a slowing of the blood flow, or an increase in the cellular component of the blood.

In a few instances the arterial obstruction may be due to surgical ligation or the traumatic division of an artery.

Symptoms

Pain is usually the first symptom of an acute occlusion. It is often located at the site of the occlusion, and may promptly spread distally. In a minority of cases the pain develops hours later, and is frequently a persistent deep ache. Less commonly than pain, sudden numbness and coldness may be the initial symptoms. The patient may also complain of tingling, pallor, and weakness of the extremity.

In a study of 240 cases of arterial embolus, Haimonici⁽⁴⁾ found a sudden onset in 195 (81 per cent). Of these, 59 per cent had a sudden onset of pain, and 22 per cent a sudden onset of numbness and coldness without initial pain. A progressive onset was noted in 28 of these cases (11.7 per cent).

Examination

On physical examination the extremity is cold and very pale. Often the distal portion may present a mottled appearance, with dusky blotching. Arterial pulsations are absent below the site of obstruction.

Changes in the arterial pulsations may be noted both by palpation of the artery and by oscillometric readings. The peripheral veins are collapsed and there is no edema. The extremity is frequently weak, and there may be loss of sensation and reflex activity. Some tenderness may develop over the site of obstruction, usually several hours after the occlusion has occurred.

Diagnosis

An important factor in the diagnosis of acute arterial occlusion is the physician's constant awareness of this possibility in any patient complaining of pain, numbness, and coldness in an extremity. If the onset is sudden and the classic findings are present, diagnosis should not be difficult. The presence of heart disease, especially with auricular fibrillation, or of chronic arterial vascular disease should focus attention on the possibility of acute occlusion. It is those cases in which the onset is rather gradual and the symptoms are unusual that present a diagnostic problem.

Acute thrombophlebitis is the most common condition which must be distinguished from an acute arterial occlusion. Edema, distended veins, normal or slightly increased skin temperature, and palpable arterial pulsation are usually seen in association with acute thrombophlebitis. However, severe arterial spasm with an absence of arterial pulsations may be associated with acute thrombophlebitis. Usually this spasm is rather temporary, but occasionally it may be quite difficult to exclude an acute arterial occlusion when the patient is first seen.

It is often impossible to distinguish an acute occlusion due to an embolus from an acute thrombosis of the artery. In general, in cases of acute thrombosis there is a history of peripheral vascular disease, prodromal pains occur several hours before the acute symptoms appear, and the initial symptoms may not be dramatic. On the other hand, an embolus is often unannounced and the onset is sudden and severe in patients with heart disease, especially those with auricular fibrillation. The above criteria, however, may be seen in both types of occlusion, so that a final diagnosis cannot be made immediately.

It is often important also to localize the point of occlusion. Emboli usually lodge at points of bifurcation of the artery, as the

lumen of the vessel becomes smaller at these areas. Thrombi also frequently form at arterial bifurcations, since the intima is often damaged at these points and there is a slowing of the blood flow. Occlusions usually occur just distal to the point where the normal pulsation ceases. The anatomic position of some of the peripheral arteries, however, does not allow one to palpate them in their entirety.

Some idea of the localization of an acute arterial occlusion may be obtained by noting the level at which skin temperature changes from low to normal. When the occlusion is in the popliteal artery, the level of temperature change is just above the ankle; when the occlusion is at the bifurcation of the femoral artery the line of demarcation is at the junction of the middle and lower third of the thigh; and when the iliac artery is occluded, the level is at the junction of the middle and upper third of the thigh. In arterial occlusions of the upper extremity, the level of temperature change is several inches distal to the area of obstruction.

The site of the pain may also aid in localizing the occlusion. Obstruction at the aortic bifurcation usually produces pain in the lower part of the abdomen and thighs, with some extension down both legs, often more severe in one leg than the other. The pain accompanying obstruction of the iliac artery is quite similar to that of obstruction at the aortic bifurcation, but is unilateral. Obstruction of the femoral artery produces pain in the knee and lower leg, often extending into the foot. With popliteal obstruction, the pain is in the foot and ankle. In the upper extremity the pain originates several inches distal to the occlusion and extends into the hand.

Pathologic Physiology

When the lumen of an artery is suddenly occluded, certain secondary pathologic changes which are of considerable importance in the subsequent clinical course of the involved extremity occur. Following an acute arterial occlusion, salvage of the limb will depend upon the presence of adequate collateral circulation. If the occlusion is very gradual, adequate collateral circulation may have time to develop over a period of weeks or months.

Following the sudden occlusion of a large artery marked vasospasm of the artery distal to the point of obstruction, as well

as vasospasm of many or all of the collateral arteries and even arterioles, often occurs. This arterial spasm greatly increases the degree of ischemia in the limb. Occasionally the arterial spasm may extend for some distance proximal to the obstruction.

Shortly after the acute occlusion, secondary thrombi may form in the artery distal to the obstruction and also in the collateral arteries. In some instances the clot is propagated proximally from the site of obstruction. These instances of secondary thrombosis are thought to be due to a slowing of the blood flow as a result of the decreased arterial pressure, as well as to an increased tendency of the blood to coagulate. In addition, the cells of the intima are damaged by the ischemia, thus facilitating the formation of secondary thrombi. The formation of these thrombi undoubtedly plays a major role in the development of gangrene.

Clinical Course

The clinical course of an acute arterial occlusion varies according to the degree that the circulation to the extremity is preserved or restored. (1) There may be a severe ischemia of the affected limb with death of the patient as the result of some underlying disease process; (2) the circulation may be inadequate and gangrene may develop, necessitating amputation at a later date; (3) recovery may be incomplete, with residual signs and symptoms of arterial insufficiency of varying degrees; (4) the arterial function may so improve that no residual clinical evidence of arterial insufficiency remains. The prognosis for acute arterial occlusion of an arm is better than when the occlusion is in a leg. Although gangrene of an upper extremity is uncommon, it may occur.

In a report of 100 cases of acute arterial occlusion, McKechnie and Allen⁽⁵⁾, in 1936, found that gangrene occurred in about 50 per cent of the cases. Since then, with improvements in treatment, the circulation has been restored in about 85 per cent of cases treated early, and in about 40 per cent of cases in which treatment was started 24 or more hours after the occlusion⁽⁶⁾. Haimanici⁽⁴⁾ found the incidence of gangrene to be much higher in cases that were treated late or not at all. In the past few years, the combination of early embolectomy plus heparin therapy

has effected a salvage of 60 to 90 per cent of limbs⁽⁷⁾.

Treatment

The goal of the treatment of acute arterial occlusion is to restore adequate, if not normal, circulation to the involved extremity as promptly and completely as possible. Any delay in starting treatment jeopardizes the salvage of the extremity. Every effort should be made to relieve the vasospasm and to prevent the formation of additional thrombi in the distal arteries.

Opiates should be given immediately to relieve the pain or discomfort, and the patient hospitalized as soon as possible.

The ischemic tissues are much less tolerant to heat than are normal tissues. The application of a hot water bottle or heating pad to the cold ischemic extremity is dangerous and should never be done. The careless use of excessive external heat will cause extensive destruction of tissue.

The extremity must not be elevated, but instead should remain level or slightly dependent, thus allowing the force of gravity to aid the flow of arterial blood. A bandage applied loosely to the involved extremity will protect it from trauma. Thick and loosely fitting socks may be used effectively.

Relief of vasospasm

Various drugs and procedures have been found useful in abolishing arterial vasospasm. Though not effective in every case, they certainly should be given a trial. Many observers have found that the immediate intravenous administration of one grain of papaverine hydrochloride will promptly relieve the arteriospasm. This dose may be repeated every two to four hours as needed. Warren and Linton^(7a) felt that the therapeutic benefit are disappointing. Allen⁽⁶⁾ and associates believed that improvement of the circulation will be immediate or not at all.

Priscoline also has a vasodilating effect, and may be given intravenously in doses of 25 to 50 mg. Beneficial results may not always be observed. The relief of vasospasm is often quicker and more effective if priscoline and papaverine hydrochloride are injected intra-arterially. After the vasospasm has been relieved, maintenance therapy may be continued by the intramuscular route.

The interruption of sympathetic nerve impulses to the arteries is also effective in relaxing vasospasm.

As soon as possible a sympathetic nerve block of the involved extremity should be done, and the extremity carefully watched for evidence of increase in the skin temperature, improvement of the color, and possible return of the arterial pulsations. If the spasm is relieved, the patient may notice a sensation of warmth and a decrease of the pain and numbness of the extremity. Since the effects of the block may not become apparent for 15 or 30 minutes, one should continue to observe the patient. If the sympathetic block is effective, it may be repeated whenever necessary, and one of the longer lasting local anesthetics may be used.

Alcohol given by mouth or intravenously as a 5 per cent solution in glucose and water has a vasodilating effect and will frequently decrease the vasospasm as well as improve the patient's sense of well being. In my experience the intravenous route is more effective. Both methods of administration may be used simultaneously.

Increasing the room temperature to 85 or 90 F., applying warm packs to the body, and immersing the uninvolved extremities in warm water will encourage peripheral arterial vasodilation.

Anticoagulant therapy

Immediate anticoagulant therapy is necessary to prevent the propagation of the clot and the formation of thrombi distal to the occlusion and in the collateral circulation. Fifty to 75 mg. of heparin given intravenously will rapidly increase the coagulation time. This dose should be administered promptly and repeated every four hours, attempting to keep the coagulation time between 15 and 20 minutes. Following the initial intravenous dose, heparin may be administered by the subcutaneous or the intramuscular route. Maintenance therapy has been continued by using heparin in a vehicle causing slow absorption, such as a daily injection of 200 to 300 mg. of Depo-Heparin. Engelberg⁽⁹⁾ has recently found that 150 to 200 mg. of aqueous heparin given subcutaneously or 300 to 400 mg. given every 24 hours will maintain the desired anticoagulant effect. In the event of bleeding or immediate surgery, the coagulation time may be promptly returned to normal by the intravenous injection of 50. mg. of protamine.

For long-term anticoagulant therapy

Dicumarol has many advantages over heparin. If no immediate surgery is to be performed, the two agents may be started together. The heparin will give the patient prompt anticoagulation, while the Dicumarol is effecting a decrease in the prothrombin activity. When the prothrombin time reaches therapeutic levels, the heparin is discontinued. If gangrene develops, it is advisable to continue the Dicumarol until a few days prior to amputation.

While the patient is on some form of anticoagulant therapy there is a risk of retroperitoneal hemorrhage following a sympathetic block. Pratt⁽¹⁰⁾ reported that he performed 2,100 sympathetic nerve blocks on patients receiving anticoagulant therapy without a single incidence of post-block bleeding. De Takats^(8a) recommends the immediate administration of heparin and papaverine; and if the limb does not respond favorably, a sympathetic block is done. No mention is made of any risk of bleeding following the block; however, the possibility should be kept in mind. It would be safer to perform the block before heparin is started or three to four hours after it has been administered.

Embolectomy

The immediate surgical treatment of an acute arterial occlusion should be restricted to cases of arterial emboli. In cases of arterial thrombosis the vessel wall is frequently so severely damaged that a successful reopening of the lumen is impossible; and even if the thrombus is removed, it usually recurs very quickly. In certain selected cases, however, the recent advances in the use of arterial grafts may offer some promise.

If the circulation of the involved extremity does not show prompt improvement under the foregoing therapy, embolectomy should be considered provided the patient's condition permits it. Recent reports of embolectomy combined with anticoagulant therapy have been encouraging. In general, embolectomy offers the greatest promise of benefit when: (1) the procedure is done within 10 to 12 hours after the onset of the occlusion; (2) the embolus is in the lower part of the aorta, the iliac, the femoral or the subclavian artery; (3) the patient is not moribund from some

other disease; (4) underlying disease of the arterial tree is minimal.

Following embolectomy, all the procedures to prevent arterial spasm and thrombi formation should be continued. Adequate circulation may be restored and the patient may progress to a good recovery. Unfortunately, in spite of embolectomy combined with the other forms of treatment, gangrene may result from formation of a thrombus at the suture line, thrombi in the distal arterial segments, or extensive tissue damage from external heat. In those cases amputation will be necessary.

Illustrative Cases

Case 1

The patient, a 55 year old woman with mitral stenosis and auricular fibrillation, had had a postpartum thrombophlebitis of the right leg about 30 years ago. Nine months previously she had had an episode of pain and coldness of the right leg lasting several days. Apparently she recovered without sequelae. About 12 hours before I first saw the patient, she had a sudden onset of pain and coldness in the right foot and calf. From the right knee down to the toes the leg was pale and cold. No arterial pulsations were felt below the right femoral artery. The left leg was normal. The patient refused hospitalization. She was treated at home with Priscoline and alcohol given by mouth. On the following day, September 25, 1951, she requested hospitalization because the pain was still present, although less severe. The examination was essentially unchanged. She was kept in a warm room and treated with Dicumarol, Priscoline, and alcohol given by mouth. On the second hospital day she had a sudden onset of numbness and coldness in both feet, followed in several hours by a deep aching pain in both calves and feet. Both legs were cold and pale from the knees to the toes. No arterial pulsations were felt in the right leg, and only the femoral pulsation was present in the left leg. An immediate bilateral lumbar sympathetic block was done, resulting in some increase in the temperature of the whole left leg. The right leg remained unchanged. Twelve hours later both legs were warmer, and the right femoral pulsation had returned to normal. She continued to receive Dicumarol, Priscoline, and alcohol by mouth. It was felt that the temporary absence of the right femoral pulsation was due either to arterial spasm proximal to the occlusion, or to movement of the embolus distally in the femoral artery. The patient continued to improve, and at the time of discharge both feet were warm and normal in color, but no arterial pulsations were felt below each femoral artery. Three years later there were no clinical symptoms of arterial insufficiency, but the patient walked very little.

Diagnosis: Acute arterial emboli to the right and left popliteal arteries and possibly the right femoral artery.

Case 2

For two years the patient, a 58 year old man, had noted intermittent claudication pains in the left thigh, hip, and calf. His general health had been good otherwise. On May 18, 1952, there was an abrupt onset of pain in the left hip, thigh and calf, lasting about 30 minutes and then rather quickly disappearing. During the next 12 hours he felt normal. The severe pain then suddenly recurred and persisted. He also noted a sensation of numbness in the left thigh, calf, and foot. He was hospitalized about two hours after the pain began. An electrocardiogram was normal. The right foot and leg were normal. The left leg was cold and pale from the knee to the toes, and the superficial veins were collapsed. The left femoral, popliteal, posterior tibial, and pedis dorsalis pulsations were absent.

A left lumbar sympathetic block was done, with some improvement of the color and temperature of the leg. In addition, the patient was given papaverine hydrochloride and alcohol intravenously, and Depo-Heparin. The leg continued to improve. This treatment was continued and Dicumarol started. The Depo-Heparin was discontinued when the prothrombin activity was reduced to 25 per cent of normal. The left leg and foot remained normal, but the arterial pulsations did not return. On the twenty-fifth day a left paravertebral sympathetic ganglionectomy was done. At operation the aorta was observed to be moderately sclerotic. There was a complete occlusion of the origin of the left iliac artery. Subsequently, the left leg tired more easily than the right. In March, 1953, the return of the left pedis dorsalis pulsations was noted, and in April the left posterior tibial pulsations returned.

Diagnosis: Thrombosis of the left iliac artery.

Case 3

The patient, a 72 year old woman, was known to have had hypertension and coronary arteriosclerotic heart disease with auricular fibrillation. In spite of this, her general health was fairly good. The peripheral arterial pulsations were previously observed to be normal. On October 6, 1952, there was a sudden onset of severe pain in the left knee, aching in the left calf, and weakness of the lower part of the left leg. The blood pressure was 210 systolic, 90 diastolic. The heart rhythm was totally irregular, and the lungs were clear. The arterial pulsations, color, and temperature of the right leg were normal. The left leg was cool and pale from the upper thigh to the toes. The pedis dorsalis, posterior tibial, popliteal, and femoral arterial pulsations on the left were absent, but a strong pulsation was felt just above Poupart's ligament.

Papaverine hydrochloride was given intravenously, and a left lumbar sympathetic block was done. The left thigh became warm to the knee, but no other changes were noted. About five hours after the onset of pain an embolus was re-

moved from the bifurcation of the left femoral artery, which anatomically was just above Poupart's ligament. Postoperatively the patient was given heparin, Dicumarol, papaverine hydrochloride intravenously, and 5 per cent alcohol in glucose and water. The room temperature was kept at 85 F. The leg became warmer down to the mid-calf, and the color returned to normal. At the time of discharge from the hospital there were no symptoms of arterial insufficiency of the left leg.

Diagnosis: Acute arterial embolus of the left femoral artery.

Case 4

A 64 year old woman was admitted to the hospital on December 19, 1954, in a mentally confused state, complaining of pleuritic left anterolateral pain in the chest. There was no history of any cardiovascular disease. Her general state of nutrition was poor. The peripheral arterial pulsations were normal. On the third hospital day the heart rhythm changed from normal sinus to auricular fibrillation. The electrocardiogram suggested an acute anterior myocardial infarction.

On the morning of the fourth hospital day, the patient complained that the right forearm and hand had been cold, numb and aching for about four hours. The right hand and forearm were cold and pale, and no arterial pulsations were felt beyond the right subclavian artery. Her treatment consisted of slow intravenous injection of 5 per cent alcohol in glucose and water, elixir of Roniacol, and continuation of the Dicumarol. She was examined on several occasions by a surgical consultant. It was decided that, because of the patient's critical condition and seeming improvement of the arm, no immediate surgical treatment of the arterial occlusion would be necessary.

The arm did fairly well for the next two days. The patient then grew worse, became comatose, and the right hand and arm became very cold and mottled. At this time the right leg, which previously had been normal, was discovered to be cold and mottled in appearance, and no arterial pulsations were felt below the right femoral artery. Several hours later she died.

A postmortum examination revealed an anterior myocardial infarction with a large mural thrombus, an embolus occluding the third part of the right subclavian artery, and an embolus of the right femoral artery 7 cm. below the bifurcation.

Diagnosis: Acute arterial emboli of the right subclavian and right femoral arteries.

Case 5

For several years the patient, a 68 year old woman, had had coronary arteriosclerotic heart disease with auricular fibrillation. For four months she had complained of intermittent claudication pains in both feet and calves, gradually becoming worse. In the evening of January 17, 1955, she experienced a sudden, severe, vice-like pain in the region of the right foot. She noted that the foot was cold and pale. The pain subsided in the next

two or three hours, but the numbness persisted. At this time I talked by telephone with the patient, who lived in another town, and recommended immediate hospitalization, but she preferred to remain at home. During the next 15 hours severe pain recurred in the same area of the right leg several times, and the patient was hospitalized. The blood pressure was 130 systolic, 80 diastolic. An electrocardiogram showed auricular fibrillation. Both feet were cold, the right more than the left. The right foot and ankle were very pale; the color of the left foot was normal. The femoral arterial pulsations were normal, but the popliteal, posterior tibial, and pedis dorsalis pulsations were absent bilaterally. She was placed in a warm room and treated with Dicumarol, alcohol given orally and intravenously, and elixir of Roniacol. The foot slowly became warmer and the color improved. The pain was much less, but the ankle ached after walking a few steps. Three weeks after the onset a right lumbar paravertebral parasympathetic ganglionectomy was done, resulting in further improvement of the right foot and leg.

Diagnosis: Acute occlusion of the right popliteal artery probably secondary to a thrombosis.

Case 6

For one year the patient, a 46 year old man, had noted intermittent claudication pains in the left calf. On August 15, 1955, he had a sudden onset of severe pain in the calf of the right leg and numbness and coldness of the right foot. After about 30 minutes the pain disappeared, but recurred when the patient walked only a few steps. The foot remained pale and cold. On August 17, 1955, the patient was hospitalized and I saw him in consultation. The blood pressure was 142 systolic, 82 diastolic. The electrocardiogram was normal. The left leg was normal and the foot cool. The right leg was cool up to the mid-calf; the foot was very pale and cold. The arterial pulsations of the left leg were normal. The pulsations were absent on the right below the femoral, which was normal. A right lumbar sympathetic block brought only slight improvement.

The patient was treated with alcohol, given intravenously and orally, Priscoline, and nitroglycerine, and was kept in a warm room. During and following the intravenous administration of alcohol, the right foot became warmer and pinker, and the patient stated that it felt more comfortable. At the time of discharge he was able to walk about 150 feet without discomfort, but evidence of much vasospasm of the right foot persisted.

Diagnosis: Acute thrombosis of the right popliteal artery, probably secondary to arteriosclerosis obliterans.

Summary

An acute arterial occlusion is an emergency which requires prompt diagnosis and treatment. The principal causes are arterial thrombosis and arterial emboli.

The importance of the collateral circulation and of the secondary arterial spasms and thrombi in the distal and collateral arteries have been discussed. The immediate treatment should be directed toward restoring adequate circulation in the involved extremity, relieving the vasospasm, and preventing secondary thrombosis. The hazards of further damage to tissues by the local application of external heat must be constantly kept in mind.

If adequate circulation is not promptly restored to the extremity by nonsurgical methods, an immediate embolectomy should be considered. The surgical results in cases of an acute arterial thrombosis are not good.

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Anesthesia for the Poor Risk Patient

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During the last 20 years the variety and scope of surgery offered to the patient have increased considerably. Longer and more extensive operations performed on ever widening age groups have multiplied the responsibilities of the anesthesiologist. More frequently he is being confronted by patients labeled, "poor risk," whom it is believed surgery will benefit.

Circumstances Contributing to Surgical Risk

What constitutes a poor risk patient? At best the term is relative, depending to some extent on the skill and experience of the operating room team, but much more on the physiologic deviations from normal exhibited by the patient. The hazard of surgery and anesthesia to the patient may be greater than average under the following circumstances.

Shock

Hemorrhagic shock definitely increases the risk to the patient. The danger is multiplied many times if the patient is rushed to the operating room without careful evaluation. If at all feasible, and such is usually the case, efforts should be made by multiple transfusions to relieve the shock or improve the patient's condition before surgery is attempted. Good emergency surgery is controlled emergency surgery.

Neurogenic shock may develop following trauma which is associated with severe pain. If gross hemorrhage can be ruled out, relief of pain with narcotics or properly administered general or even spinal anesthesia will benefit the patient. Again careful evaluation is necessary.

Occasionally patients on arriving in the operating room will exhibit a waxen pallor, cold, clammy extremities, and slow but regular respirations. Blood pressure will be at shock levels and pulse will be rapid and thready. Usually this shock-like state is the result of a relative overdosage of pre-

operative drugs. In such instances surgery should be postponed to another day and premedication modified.

General debility

General debility is perhaps a catch-all phrase, but it refers specifically to the patient who has had a lingering illness, usually neoplastic in etiology, which has been associated with marked and persistent weight loss. Frequently these patients are in the older age group. Their appetite is poor, or their pathologic condition has prevented proper assimilation of ingested food. Usually they have a negative nitrogen balance which is associated with electrolytic changes.

Perhaps most important of all from the anesthetic and surgical standpoint is the decrease in blood volume seen in these patients. This deficiency is difficult to measure, except by dye or radioisotopic techniques, and is not reflected in the red blood cell count, or hemoglobin and hematocrit estimations. A reduced blood volume lowers the ability of the patient to resist anesthetic or surgical stress during operation.

In such patients dehydration and electrolyte imbalance should be corrected by proper fluid therapy. Adequate blood volume can be restored by giving one or several pints of blood in the preoperative period. These measures help to improve the surgical risk of the patient.

Cardiovascular disease

Generalized arteriosclerosis and hypertensive cardiovascular disease are common in geriatric patients coming to surgery. With the proper application of modern anesthetic techniques such conditions, if uncomplicated, do not increase the operative hazard. However, if the patient has suffered recently from cardiac decompensation or failure, or has a diminished cardiac reserve, the risk may be greater. A careful history of the physical capabilities of these patients is of inestimable value.

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From the Division of Anesthesia, Duke Hospital and Duke University School of Medicine.

A review of their day to day activities often will indicate whether the strain and stress of operative interference can be withstood with relative safety. Semi-invalidism increases the hazard considerably, whereas ability to lead a semi-active life is reassuring. The administration of digitalis compounds or quinidine should be limited to those patients in whom such therapy is indicated specifically. When such medication is given, time should be allowed for the establishment of a proper maintenance dose before operation is undertaken. Overdigitalization can complicate seriously the operative and postoperative course by increasing cardiac vagal tone and prolonging the auriculoventricular conduction time.

Patients coming to surgery for correction of mitral or pulmonary valvular stenosis present particular anesthetic problems. Preoperatively, it is important to avoid overdigitalization and produce relative dehydration by limiting fluids and administering diuretics when indicated.

Pulmonary disease

Diseases which interfere with or diminish alveolar exchange of oxygen and carbon dioxide increase the operative risk. Pulmonary fibrosis and emphysema, bronchiectasis, and severe asthma are conditions which alert the anesthesiologist. If a thoracotomy is to be performed, the risk to the patient and the responsibilities of the anesthetist become correspondingly greater. Measurements of vital capacity, maximum breathing capacity, and arterial oxygen saturation are useful preoperatively, but impossible to carry out in routine practice. Again a knowledge of what the patient is able to do from day to day is a useful guide to his respiratory reserve. In such patients it is important to add extra oxygen to the inhaled gases during anesthesia and to avoid using drugs which depress respiration unless the anesthetist is prepared and able to assist or control the tidal exchange. During intrathoracic operations the anesthetist must actively assist or control respiratory exchange. In the postoperative period patients with respiratory insufficiency must be watched most assiduously. If secretions are abundant and the patient shows little initiative to cough, serious consideration should be given to performing a tracheotomy. This procedure reduces dead space, thus improving alveolar ventilation,

and allows frequent, thorough aspiration of the tracheobronchial tree with relative ease.

Advanced liver or kidney disease

The operative risk in patients with advanced liver or kidney disease is increased, but can be minimized by avoiding the use of drugs which are metabolized in the liver or excreted largely by way of the kidney.

Choice of Anesthesia

There are no hard and fast rules concerning the choice of anesthesia for the poor risk patient. Each case must be considered as an individual problem, and the anesthetist must choose the type of anesthesia which he believes he can administer to the best advantage under the circumstances. Certain general principles emerge which are more or less common to all cases:

Oxygenation

The commonest cause of sudden death or cardiac arrest in the operating room is anoxia. In poor risk patients the allowable margin of oxygen lack is much less, both in degree and duration, than in the good risk patient. Provision of adequate oxygenation involves not only the smooth transfer of oxygen across the alveolar membranes into the blood stream, but also the transport of that oxygen to vital tissues. Avoidance of hypoxia is essential, and can be achieved only by supplying an excess of oxygen in the inhaled gases, maintaining good tidal exchange of air with each respiration and preserving a blood pressure or cardiac output which is "normal" for the patient concerned. A patient who is hypertensive preoperatively undergoes less risk if his blood pressure is maintained at high levels during and after operation. A reduction in the main arterial pressure reduces the minute flow of blood and therefore the delivery of oxygen to the cerebral and coronary vessels.

Preservation of physiologic function

The seriously ill patient is suffering from physiologic deviations for which he is attempting to compensate. During anesthesia one must try to preserve or improve the pre-existing situation and not interfere with any compensating influences. In this connection it is worth while to consider the relative value of general versus spinal or regional analgesia. Nearly all inhalation and intravenous drugs disturb metabolic function to some extent, the degree of in-

duce a critical hypotension. Nitrous oxide or ethylene in association with adequate oxygen and low concentrations of ether may prove satisfactory. The concentrations of ether must be watched carefully, as this drug can produce a dangerous peripheral vasodilatation and direct cardiac depression in addition to its hepatotoxic manifestations.

In the hands of many anesthetists cyclopropane is the drug of choice in seriously ill or shocked patients. Induction of anesthesia is relatively smooth, an abundance of oxygen can be given at all times, and there is little fear of hypotension unless an overdose is given.

Muscular relaxation, when desired, is more safely provided by muscle relaxant drugs than by using deeper planes of inhalation anesthesia. The short-acting relaxant, succinylcholine, has proven to be particularly useful. It produces no deleterious effects in the poor risk patient, providing the anesthetist is prepared to maintain adequate tidal exchange during its period of action.

Adjunctive therapy

In the poor risk patient, blood can be a life-saving nectar. Every attempt should be made to maintain the blood volume by

replacing blood as it is being lost. Delay in replacement should not be tolerated.

When hypotension occurs, one should establish whether it is due to bleeding or autonomic imbalance, and then proceed with therapy. Vasopressor drugs should not be used indiscriminately or as a substitute for blood. They may be employed to tide the patient over an acute emergency, but otherwise only when there is clear evidence of loss of sympathetic tone. Occasionally, small doses of anticholinergic drugs such as atropine are useful to correct a sudden bradycardia and hypotension due to potent reflex parasympathetic stimulation.

Case Reports

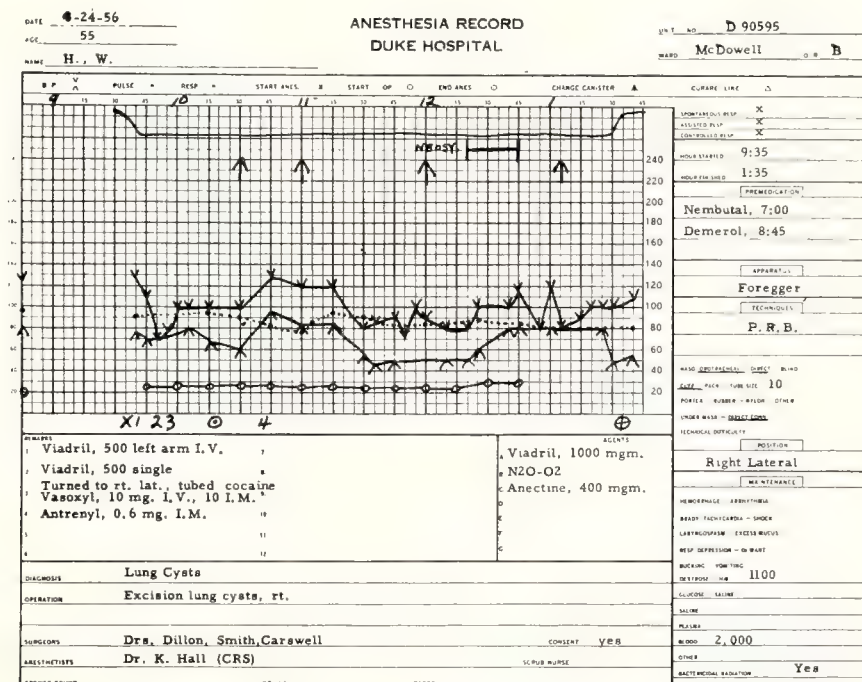
The following case histories illustrate some of the points mentioned above:

Case 1

An 84 year old Negro man was admitted with history of marked weight loss and anorexia. The hemoglobin was 4.5 Gm. and he was judged to be critically ill. The blood pressure was 180 systolic, 90 diastolic; the electrolytes were essentially normal, though the patient was markedly dehydrated. Over a period of seven days hydration was re-established, and 1,200 cc. of serum albumin was given, along with 3,000 cc. of blood. Preoperatively the hemoglobin was 12.0 Gm.

The proposed operation was exploratory laparotomy and gastric resection. This procedure was carried out under regional bilateral intercostal

Fig. 3 Anesthesia record of a 55 year old Negro man in whom a thoractomy was performed for excision of large cysts from the right lung. Anesthesia was maintained with Viadril, nitrous oxide and oxygen, and succinylcholine drip. Respirations were controlled throughout the operation in order to maintain oxygenation. Dilute Neo-synephrine drip was used to correct hypotension on two occasions.



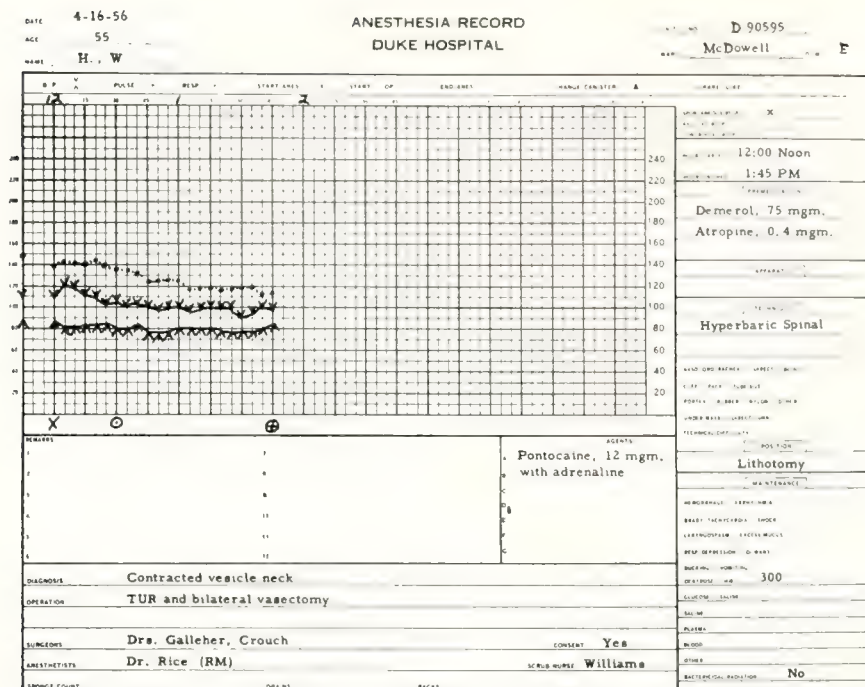


Fig. 4 Anesthetic record of 55 year old Negro man (see fig. 3) in whom a transurethral resection was performed under hyperbarbic Pontocaine spinal analgesia. Oxygen, 3 litres per minute, was administered by nasopharyngeal catheter.

block and splanchnic block under direct vision when the abdomen was opened. A 1 per cent solution of Xylocaine in a total dosage of 500 mg. was employed for the blocks. The anesthesia lasted satisfactorily for two and one-quarter hours. Because of hypotension which developed shortly after initiation of the block, a drip of Levo-Arteronal (4 mg. in 1,000 cc.) was employed for a short period. The postoperative course was satisfactory, but on the ninth day the patient had a sudden cerebral accident and died.

In this critically ill geriatric patient it was felt that regional analgesia would upset metabolism less than other possible techniques.

Case 2

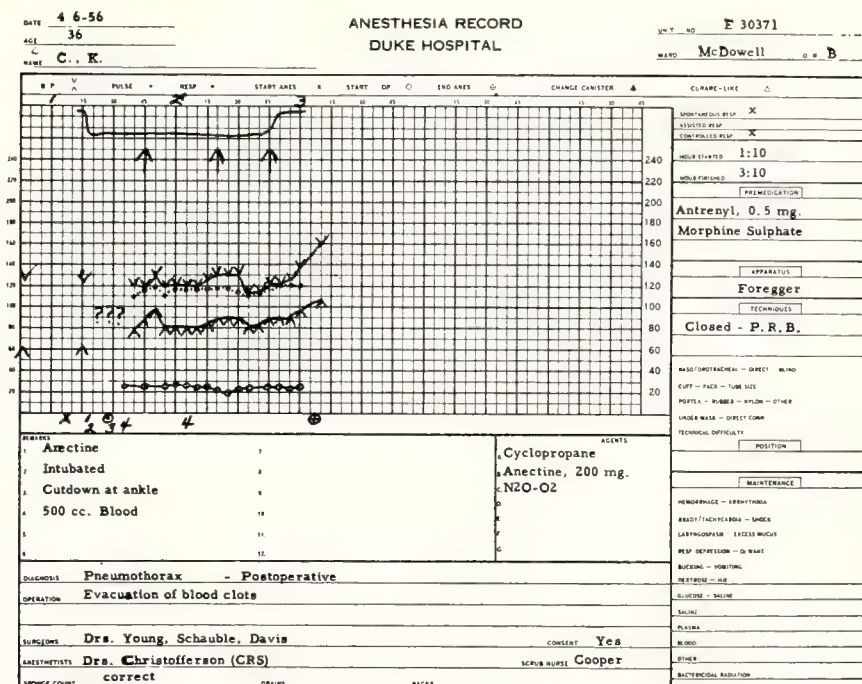
A 55 year old Negro man entered the hospital complaining of cough, asthma, and shortness of breath on exertion for nine years. He was rejected for surgery twice in 1954 because of electrocardiographic change indicating anterior wall ischemia. Examination showed severe emphysema, and roentgen examination disclosed a large cyst in the right pleural cavity (fig. 2). Pulmonary function tests showed the maximum breathing capacity to be 51 per cent of normal (53 liters per minute) with a functional residual capacity of 3.95 liters. The hemoglobin was 13.5 Gm., the blood pressure 130 systolic, 70 diastolic, and the electrolytes were essentially normal. An electrocardiogram showed ventricular premature beats, delayed intraventricular conduction, and T-wave changes indicating ischemia of the anterior wall. On March 24, 1955, thoractomy with excision of cysts in the right lung was performed. During a four-hour



Fig. 5. Roentgenogram of lung showing massive hemothorax which developed following thoractomy and lobectomy for tuberculosis (case 3).

procedure (fig. 3) anesthesia was maintained with 1,000 mg. of Viadril, nitrous oxide and oxygen, and 1,000 mg. of succinylcholine. The patient was kept under very light anesthesia, and tidal

Fig. 6 Anesthesia record of a 36 year old Negro patient who came to operating room two days following lobectomy for thoractomy and removal of clotted hemothorax. Condition was critical at second operation, N.B. blood pressure was absent for 15 minutes.



volume was maintained by manual artificial respiration during the entire procedure. He was given 2,000 cc. of blood. Following the operation the patient was febrile, and had abundant secretions. A tracheotomy was performed to facilitate aspiration and reduce dead space. Urinary retention developed, and on April 16 transurethral resection and bilateral vasectomy were performed under spinal analgesia, employing 12 mg. of a hyperbaric solution of Pontocaine (fig. 4). During the operation shortness of breath was alleviated by administering nasopharyngeal oxygen, at the rate of 3 liters per minute. The second postoperative course has been benign.

Case 3

A Negro woman, aged 36, had been undergoing intensive therapy for bilateral pulmonary tuberculosis for five months. Apart from moderately advanced infiltration in both lungs, worse on the left, her general condition was good. On April 3, during a five-hour operative procedure under Surital sodium, nitrous oxide, oxygen, meperidine drip, succinylcholine drip, and cyclopropane, a left upper lobectomy and segmental resection of the superior segment of the left lower lobe were performed. The anesthetic course, which was uneventful, was maintained with controlled respirations. Three thousand cubic centimeters of blood were given during the operation. Eight hours postoperatively the patient went into severe shock, which responded to blood transfusions. During the next 48 hours hypotension requiring transfusions occurred on several occasions. A massive hemothorax developed and failed to respond to suction drain-

age or aspiration (fig. 5). Dyspnea and air hunger became gradually more severe.

On April 6 the patient was returned to the operating room for re-exploration of the left thoracic cavity. Respirations were rapid and labored, the pulse was 136 per minute, and the blood pressure 126 systolic, 60 diastolic. Her condition was considered critical. Anesthesia was induced with cyclopropane (fig. 6). During the induction period blood pressure became suddenly unobtainable and the pulse rapid and difficult to palpate. Succinylcholine (40 mg.) was given rapidly, the patient was intubated, and controlled respirations were established. A cutdown in the ankle was done and blood started while the chest was being opened. As soon as the thorax was opened, the blood clots were removed, and the left lower lobe was re-expanded. The patient's general condition improved, with the return of blood pressure to normal levels. Postoperatively, respiratory distress developed again, and a tracheotomy was performed to facilitate removal of secretions. Following this procedure improvement in respiration was marked and convalescence continued without interruption. The patient was discharged on April 20.

Summary

Surgery in the poor risk patient requires careful preoperative appraisal by the internist, anesthesiologist, and surgeon. The anesthetic technique and drugs must not interfere as little as possible with the existing condition of the patient. Deep planes of anesthesia, hypoxia, or hypotension can precipitate an irreversible trend of events.

Technical Suggestions for Cancer of the Tongue and Floor of the Mouth

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To increase the effectiveness and decrease the morbidity of operations for malignant lesions of the oral cavity, certain technical applications, described below, have been found especially helpful. We have presented the general plan of treatment and our results of treatment of cancer of the tongue and floor of the mouth in an earlier publication⁽¹⁾. Our deviation from the usual procedures, by use of intra-arterial nitrogen mustard limited to the involved areas, has also been given elsewhere⁽²⁾.

En Bloc Excision for Oral Lesions Closely Associated with Neck Metastases (Fig. 1)

When a lesion of the anterior two-thirds of the tongue or floor of the mouth is associated with disease of the neck, the combined oral and neck approach may be accomplished by entering the mouth via the routine neck incision. After the neck dissection has been completed, leaving the neck contents attached to the mandible, the oral cavity is entered. When the disease may be intimately associated with or invading the mandible, a segment of mandible will be sacrificed. Rarely it may be preserved, but if so the residual oral tissues will not collapse easily for final closure. To accomplish the *en bloc* excision with a mandibular fragment, the upper skin flap of the neck dissection is reflected superiorly with the cheek overlying the portion of the mandible to be sacrificed. The oral cavity is then entered with a curved Kelly clamp on the inside surface of the mandible through the floor of the mouth and again anterior to the mandible. A Gigli saw is passed through these openings, and the mandible is cut. The mandible is spread through this incision, and the oral lesion is

outlined with the electric cautery knife. The bone is again transected on the other side of the lesion and is removed, together with the oral growth and its metastases to the neck *en bloc*. In certain instances, the mandibular segment is freed by transection at one point and disarticulation at the temporo-mandibular joint. If cancer is present on both sides of the neck, the contents of both sides may be removed with the oral lesion *en bloc*. In the latter case, either an external or an internal jugular vein is preserved if feasible.

Operation for Cancer of the Base of the Tongue (Figs. 2 and 3)

In 1940 an article by Martin, Munster, and Baker⁽³⁾ stated: "Treatment of cancer of the base of the tongue, in our opinion, should be considered inoperable in all cases." In 1949, however, Slaughter⁽⁴⁾, in describing the technique of the modern "combined operation" (composite operation or commando procedure), gave credit to Martin and his associates for developing this procedure. We have found the combined oral and neck approach to be especially applicable to cancer of the base of the tongue when the lower lip and mandible are divided and spread for exposure to the posterior pharynx and tongue base. Reports by Slaughter⁽⁴⁾ and Martin⁽³⁾, as well as those by Kaplan⁽⁵⁾, Carroll⁽⁶⁾, Wilson⁽⁷⁾, and White⁽⁸⁾, confirm this finding.

Technique

Since cervical nodes are usually involved by the time a diagnosis of cancer of the base of the tongue has been made, the operation is begun by a routine incision for radical dissection of the neck. The incision is carried medially from the tip of the mastoid process, across the neck at the

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Fig. 1. This patient had a cancer of the floor of the mouth involving the anterior portion of the mandible, plus bilateral large neck nodes. A bilateral neck dissection has been completed (preserving one external jugular vein). The mouth was entered through the neck, and the soft tissue of the chin and lower lip reflected superiorly. The diseased tissue, including a central segment of mandible, was removed en bloc.

In the photograph, the soft tissue of the chin is being held above the tongue, and one severed end of the mandible is demonstrated.

level of the hyoid bone nearly to the mid-line, and then superiorly up through the center of the chin and lower lip. The skin flaps are developed in the neck and the dissection is accomplished from the clavicle to the mandible. Now one-half of the lower lip and soft tissue of the chin, with the attached skin flap of the upper part of the neck, are reflected off the mandible toward the involved side. The labio-lingual line is incised during this step. The mandible is transected with a Gigli saw anterior to all diseased tissue, but as far back as the mental foramen if possible. The mandibular fragments are widely spread, to afford exact exposure and operating freedom as far inferiorly on the tongue as the epiglottis. The cautery is used to outline by incision the malignant area with a sufficient margin of healthy tissue. The cheek flap is further reflected with the skin flap of the upper part of the neck, and the soft tissue of the chin and lip to expose the temporo-mandibular articulation. The mandibular fragment is then disarticulated, and



Fig. 2 For approach to a cancer of the base of the tongue, the neck dissection skin flaps have been developed and the incision has been carried superiorly from the mid-line of the chin through the lower lip. Skin flaps have been laid back to demonstrate the incisions.



Fig. 3. The patient in figure 2 is shown again after the mouth has been entered by dividing soft tissues of chin and lip, reflecting the cheek, and dividing and spreading mandible. One instrument holds a portion of the dissected neck contents and the other points to the primary lesion on the base of the tongue.



Fig. 4. Roentgenogram of patient in whom a central segment of the mandible has been sacrificed in removing a cancer of the floor of the mouth. The photograph shows a heavy Kirschner wire stabilizing the two remaining mandibular fragments.

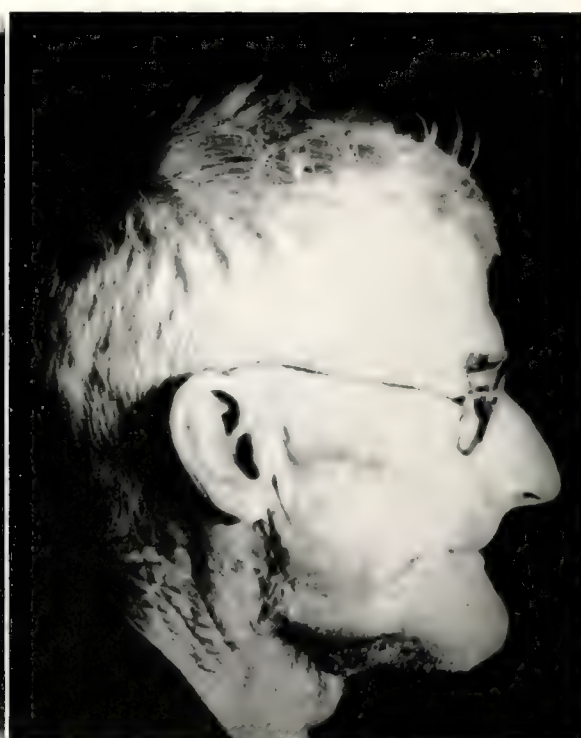


Fig. 5. Lateral photograph of patient in figure 4, six months after his operation. The wire has already been removed.

the mandibular fragment, oral lesion, and neck contents are removed *en bloc*. As in any combined operation, a tracheotomy is performed.

The repair of the defect is not difficult. The missing mandibular segment allows apposition of the mucosal incision lines after preliminary approximation of deep tissues with chromic catgut sutures. The mucosa is then sutured with the same material. The lip and skin flaps are brought together in like manner, but with fine silk to skin. Both cosmetic and functional deformities are amazingly small. During the dissection of the neck, the lingual and external maxillary arteries are purposely preserved in so far as possible in order to maintain maximum blood supply for healing.

Maintaining Contour of the Chin (Figs. 4 and 5)

After excising a large central segment of the mandible, one may maintain fairly normal contour of the chin by placing a Kirschner wire or a Steinmen pin in and between the two remaining fragments of

the mandible. The wire is first bent to form the desired contour. It may be measured against the fragment removed. The ends of the wire are then driven into the mandibular fragments through their cut surfaces. The wire may sometimes be satisfactorily wedged into the medullary canals, or drill holes may be made for the wire or pin. The soft tissue of the chin is then brought over the wire. If the wire can be maintained in place for as long as two weeks, it will accomplish a great deal in fixing the residual portions of the mandible and in aiding the scar of the chin to form a normal contour. Usually, however, the wire will remain for much longer before working its way loose and presenting an end free in the mouth or through the skin of the cheek. By this time it has accomplished its maximum effect, and may be easily extracted. Subsequent bone grafting may be in order when it is ascertained that the malignant disease is controlled.

Protection of the Carotid Artery (Figs. 6 and 7)

If an incision for dissection of the neck

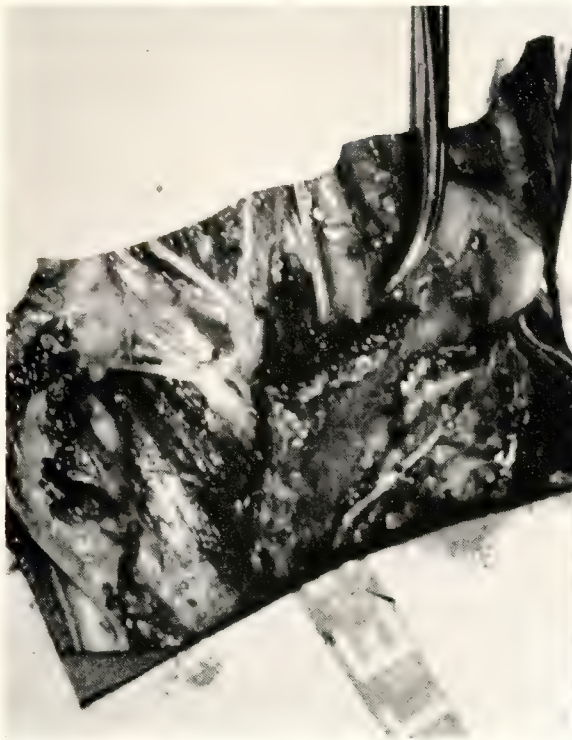


Fig. 6. After completion of a radical neck dissection, preparation is being made to rotate a muscle flap to cover the carotid artery. A retractor is placed under the levator scapulae muscle at the point to be transected.



Fig. 7. A later photograph of the operation of figure 6 shows the levator scapula muscle after it has been divided and moved anteriorly to cover and protect the carotid artery.

is made through previously irradiated tissue, or if the skin flap for the dissection has been made very thin because of superficial underlying disease, the skin may die and slough postoperatively. By this process, the underlying carotid artery may then become exposed, to result in erosion and bleeding or thrombosis. In order to obviate this complication, should the skin flap become necrotic, the carotid artery may be protected by a muscle flap. At the conclusion of the neck dissection, the levator scapula is transected as far inferiorly as possible. The free end of the muscle is then swung medially across the carotid artery and sutured to the strap muscles or to the thyrohyoid muscle or residual fascia in these areas. Should the skin over the artery then be lost, the muscle remains as a protective cover to the artery.

Summary

1. For operating upon a malignant lesion of the anterior tongue or floor of the mouth, the combined approach is satisfactorily accomplished by entering the mouth through the usual neck incision.

2. When better exposure is needed for

removing cancer in the base of the tongue, the combined neck and oral approach is best done by extending the neck incision through the lower lip into the mouth. Excellent exposure is obtained by reflecting chin, cheek, and neck skin flap on the diseased side and then dividing and spreading the mandible.

3. When a central defect is created in the mandible, the lateral fragments may be stabilized and the soft tissue chin contour improved by use of a Kirschner wire or Steinmen pin.

4. When there is danger of slough of skin overlying the carotid artery after a neck dissection, the artery may be protected by swinging a flap of levator scapula muscle to cover the artery.

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Psychotherapy and the Family Physician

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This paper is based on our experience in teaching fourth year medical students at the University of North Carolina during their six weeks' service in the psychiatric outpatient clinic. Although the students are working with patients whose disorders are predominantly emotional, we do not attempt to teach the medical speciality of psychiatry, but instead seek to point out certain important aspects of the role of psychologic thinking in medical practice. Similarly the purpose of this paper is not to discuss psychotherapy as a special medical technique concerned chiefly with the neuroses and psychoses, but rather to direct attention to the known fundamentals of the doctor-patient relationship which have universal application in the practice of medicine⁽¹⁾.

In order to focus on the doctor-patient relationship we selected a treatment method limited in both time and goals. Specifically, a student interviews a patient 10 to 12 times, with the primary goal of observing, analyzing, and clarifying the interpersonal relationship as it develops between him and the patient during these sessions.

Relationship Patterns

The key word here is "develops," because we know that a patient's pattern of interpersonal adjustment arises in his past experience and pervades all aspects of his current interpersonal relationships, including that with the physician. There is, for example, one type of person who has grown up to be inordinately respectful and a little frightened of authority, and in his rela-

tionships with superiors he is unusually polite, modest, even self-effacing, and ingratiating; there is also the blunt, blustering person who deals with his anxiety in regard to authority through joking, backslapping, and handpumping. His need is to develop a casual, personal, and nonprofessional relationship with the doctor, too.

Patients tend to develop one of two kinds of relationships with their doctors: (1) a realistic one, in which they seek the expert in medical matters; and (2) a type known as "transference," in which they repeat the same pattern of relationship which they have developed with regard to people important to them in the past. The sicker the patient is physically or emotionally, the stronger becomes the transference. For example, a person who looks on authority as benign, all-encompassing, and protecting may think, in his sicker moments, of the physician as having unusual or magic curative powers; whereas another sick individual who looks upon authority as brusque or punitive may react in a challenging, negativistic way. The doctor may see such troublesome attitudes evidenced in subtle or flagrant varieties of behavior, as with the diabetic patient who "forgets" to take his insulin, or the cardiac patient who walks up an extra flight of stairs just to "test" his heart and determine whether the doctor really knows what he is talking about. Thus patients react in many different ways to their doctors, and at times in ways that seriously interfere with treatment.

Features of the Doctor-Patient Relationship

The patient's attitude

This compulsion to repeat with the physician previously developed interpersonal

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patterns becomes the basic concept in understanding the doctor-patient relationship. To apply this concept clinically it is necessary, first, to observe and describe the kind of pattern a patient sets up, whether the behavior is competitive, dependent, ingratiating, distrustful, responsible, managerial, cooperative, or aggressive⁽¹⁾.

In order to show how we go about observing such a relationship, let us describe a woman who could be a patient in almost any doctor's office. She is dressed rather elaborately, with a low neckline which she keeps fingering and pulling. She wears a tight skirt which she repeatedly smooths across her knees. She looks interesting sitting there, but she is really more suitably dressed for a date than for a visit to a busy doctor's office. As she waits she swings her leg in a slow, rhythmic, provocative manner, watching all the men in the office. She greets the doctor in an overgracious, even coquettish manner. She walks across the room with swinging hips and almost immediately begins to tell her story in a dramatic, extravagant way, her speech filled with hyperboles. As she talks she continues to finger her clothes in a suggestive manner. On the surface this looks like sexual behavior, but it does not take long to find out—and strictly from the professional standpoint—that it is not at all; it is really competitive-exploitative behavior. The patient's provocative, seductive, exhibitionistic, and dramatic reaction is used to compete with, control, and exploit those around her.

The doctor's reaction

Then there is the other side of the relationship which we need to examine—the doctor's attitude toward the patient. Naturally he has his own feelings and may react to different patients in various ways: to one with irritation, to another with interest, to a third with distrust, and so on. His reactions may give a valuable clue as to what type of relationship the patient is developing, because certain kinds of patterns which patients unconsciously develop lead to specific counter feelings in the doctor. For example, the patient who is skeptical and distrustful more often than not provokes in others as well as in the physician feelings of anger, rejection, and even punishment; whereas, a docile-dependent person usually provokes help and advice. A

competitive-exploitative person ordinarily provokes irritation, along with distrust and inferiority. It is necessary for a doctor to observe his reactions to a patient's conduct not only in order to understand the patient, but also to minimize counter attitudes and behavior which interfere with treatment by creating distrust, competition, docility, or undue dependence in the patient.

Methods of Utilizing Behavior Patterns

We have discussed two cardinal features of the doctor-patient relationship: the doctor's awareness of the patient's interpersonal pattern and self-awareness, both of which are necessary for a rational therapeutic approach. Once the physician has observed and classified these behavioral patterns, he may adopt different methods of using them to the patient's advantage. One of the most effective hinges on the simple principle of clarifying the kind of relationship that the patient establishes with the doctor. This clarification has to be made repeatedly in a kindly, understanding manner.

For example, let us consider a patient who in fear concerning his illness becomes unduly dependent and demanding in his relationship to the doctor, regardless of whether he has diabetes, tuberculosis, urticaria, asthma, or an anxiety neurosis. We are all familiar with his pattern of repeatedly asking for advice, attention, time, and medication beyond what seems appropriate and reasonable. He sometimes seems more interested in the attention and consideration he receives than in getting well. This type of patient can be very exasperating and time-consuming, and it is possible for the physician to deal with him in several illogical but human ways: by "overtreating," suffering in silence, turning him over to an unsuspecting colleague, or acting so insufferably that the patient leaves of his own accord.

How can the physician logically approach this patient to gain his cooperation and maintain an optimal therapeutic relation? He can clarify the patient's relationship with him. The patient needs to have pointed out to him repeatedly but sympathetically, his dependent, demanding behaviour with regard to the physician. He needs to be told that receiving attention and consideration

seem more important to him than even his health and independence. Again and again he has to be shown that his helpless clinging indicates his fear of being abandoned and deserted by the physician, an unjustified and unrealistic attitude in view of the physician's interest and desire to help. The physician, however, must make it plain, without irritation, that there are real limits as to his ability to help and become involved with this patient.

Another patient may react to his illness by being very uncooperative in his relationship to the doctor and by such behavior sabotage treatment. He is inclined to make light of his illness and to prescribe his own medication, dietary restrictions, and rehabilitation program. Without advice he may reduce or leave off his insulin or change his dose of digitalis or in a dozen ways attempt to maintain his independence of the doctor. The doctor has to call attention to this patient's stubborn denial of illness and to point out to him that he acts as though the treatment is a threat to his independence which he seems to prize above his health; he needs to be told that the physician can only recommend and suggest certain courses of action which the patient must, on his own responsibility, decide whether to carry out.

Sample Case

The following case indicates how the principles might work.

A man presents himself with the chief complaint of itching and a "rash" on the face and neck. Throughout the interview he appears modest and self-effacing, and it is soon clear that this behavior is a hold-over from a previous pattern that he developed with his father, a distant, commanding, and arrogant man. The patient had adopted this meek, self-effacing attitude in an attempt to get on with his father, all the time fearing and disliking him but feeling inadequate and unable to express his real feelings. Any time the patient attempted to be aggressive he was met with such rebuff as to cause him to give up the effort. The angrier he became, the more polite he was in order to control his feelings. The more he controlled his feelings, the more unmanly and inadequate he felt.

The patient admitted that these feelings of inadequacy not only were of great concern to him but also markedly interfered with his total judgment. The itching "skin rash" had developed within 24 hours after he had been unable to express resentment at being unjustly criticized by his employer. It was felt, and the patient so informed, that his somatic complaints were largely emotional in origin and were related to unrecognized and unexpressed feelings of inadequacy and resentment. Parenthetically it should be said that a patient's manifest reactions may be defensive in nature; therefore the physician needs to recognize the underlying needs and attitudes. In this patient, for example, the manifest obsequious behavior screened underlying feelings of hostility.

The therapeutic goal in the customary dozen interviews was to point out to this patient, in a manner implying acceptance, his deferential behavior whenever it was manifested toward the doctor, and at the same time to call attention to the significance of his excessive politeness: the control of underlying anger. As the treatment went on the patient would apologize for this and that: for being a half minute late, for taking so much of the doctor's time, for wanting to change his appointment to another day or another hour, for saying this or that. He was reminded at these times what his overpolite attitude had meant in relation to his father and other people in his past. His doctor wondered aloud if the patient had thoughts about him other than polite ones. At first the patient denied this suggestion and demonstrated even greater politeness. This also was brought to his attention. Eventually the patient was able to admit that he had been angry with the doctor about many things: the seeming unconcern about the skin lesions, the lack of ointments and medications, the way the doctor just sat and did nothing, and said little. Under these conditions the patient found talking to the doctor worse than talking to the wall, because talking to the doctor cost money. The patient was benefited by being able to express these negative feelings without rebuff; even more important, the doctor had recognized and discussed in a matter-of-fact way the relationship which had devel-

oped. The patient then began to express himself more confidently in other relationships, with the result that not only did his skin lesions disappear, but his feelings of inadequacy subsequently decreased.

What we do, as illustrated by the foregoing sample case is to point out to the patient *how* he reacts to the doctor. Next we question whether his behavioral pattern is realistic in view of the circumstances, specifically whether it is actually appropriate with regard to the doctor. We then venture to tell the patient that he has certain fears, doubts, and unrealistic expectations about the physician's function. Specifically, to the dependent, demanding patient the doctor seems omnipotent; to the independent, obstinate one he appears as a threat, and to the obsequious one he represents an infallible, feared authority. It is often surprising what constructive modifications of crippled interpersonal reactions result from their clarification as experienced in the doctor-patient relationship.

Summary

We have attempted to delineate three areas of medical practice to which psychology insight may be applied constructively. In the diagnostic area we believe that the doctor must recognize and classify the predominant way in which the patient relates to him, so that a rational approach may be made to therapy. In the therapeutic area we attempt to indicate how clarifying the doctor-patient relationship may create an optimal therapeutic climate and encourage the greatest readiness to cooperate with medical procedures. The third area in which psychology insight may be applied concerns the doctor and his self-awareness. We attempt to teach our students that some understanding of their own reactions to patients not only makes them more comfortable, but enhances their diagnostic and therapeutic skill.

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1. Leary, T.: *The Theory and Measurement Methodology of Interpersonal Communication, Psychiatry*: 18:147-161 (May) 1955.

Failure of antimicrobial agents to protect against bacterial invasion in "respiratory" poliomyelitis has also been observed; in our clinic. In 165 patients with bulbar involvement or paralysis of respiratory muscles who received no antibiotics, the incidence of secondary infections was 16 per cent. In 63 persons with the same type of disease who were given chemoprophylaxis, bacterial complications occurred in 53%; approximately three and one-half times as many as were observed when no drugs were given. Although the more seriously ill cases were the ones most often treated—and this may have accounted, in part, for the large number of superimposed infections in this group—the fact remains that prophylaxis failed to protect those who were in the greatest need of protection. Of importance is the fact that pneumonia, the complication most feared in "respiratory" poliomyelitis, occurred in 22% of the patients given chemoprophylaxis and in only 6% of those who received no antibacterial agents. Of significance also is the etiology of pulmonary infections: in the treated individuals, the most common causative organisms were *Pseudomonas pyocyanea*, penicillin-resistant *Staph. aureus* and *H. influenza*, while in the untreated ones the bacteria found most often were the pneumococcus and the beta-hemolytic streptococcus.—Weinstein, L.: *The Chemoprophylaxis of Infection, Ann. Int. Med.* 43:290 (Aug.) 1955.

External Umbo Blebs

*Analysis of One Hundred Cases**

B. W. ARMSTRONG, M.D.

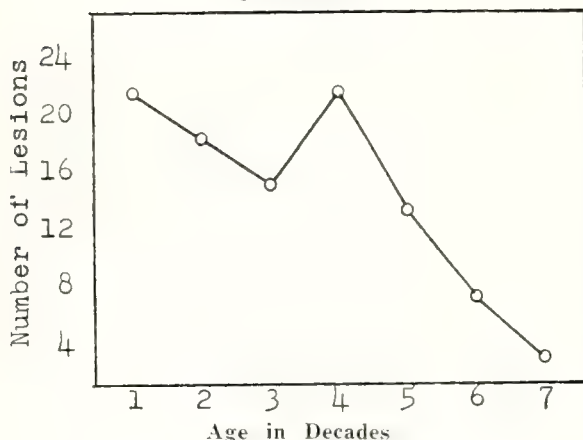
CHARLOTTE

A recent publication⁽¹⁾ contrasted acute, symptomatic vesicular lesions of the tympanic membrane with the more common noninflammatory variety. This report is limited to the observations of 100 external umbo blebs.

External umbo blebs are smooth, refractive elevations in the center of the drum which vary in size from 1.5 to 4 mm. (fig. 1). In this series, no definite symptoms have been present. The lack of symptoms has been confirmed by Lathrop⁽²⁾, Arnold⁽³⁾, and Burns⁽⁴⁾; but Wible⁽⁵⁾ and Friedman⁽⁶⁾ have indicated that some blebs are accompanied by pain, tinnitus, and impaired hearing.

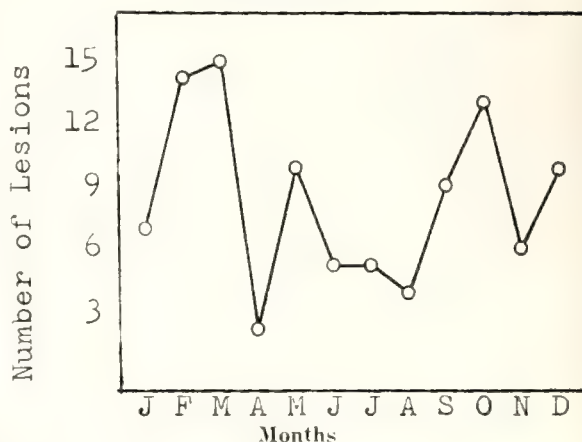
One hundred external umbo blebs were observed in 88 patients. Ten had blebs on both tympanic membranes, and since the last report, 2 patients have had recurrences. Thirty-one blebs were observed in males and 69 in females. The age incidence (chart 1) was not remarkable.

Chart 1
Age Incidence



The etiology is still unknown. An apparent seasonal incidence, coinciding with high pollen concentrations, has been observed (chart 2), and a relatively large number of patients were either known or suspected to be allergic. There is, however, considerable evidence against allergy as an etiologic

Chart 2
Seasonal Incidence



factor.

The wall of these blebs is very thin, and only one satisfactory biopsy has been obtained. The sections (fig. 2) clearly demonstrate an intra-epidermal vesicle without evidence of intracellular edema or inflammation. The vesicular fluid was crystal-clear in 97 blebs and a burnt-orange color in the other 3. Large droplets of sudanophilic material can be demonstrated in the fluid, and smaller particles polarize light. The Liebermann-Buchardt reaction for cholesterol was previously reported as being negative⁽¹⁾, but in some subsequent tests it has been positive. No crystals, bacteria, or cellular elements have been found in the fluid.

External umbo blebs are presumed to be the result of primary degeneration of epithelium. The lipid in the fluid can be accounted for only from disintegration of cells.

The differential diagnosis should present no problem. These asymptomatic vesicles are always limited to the umbo and could hardly be confused with cysts or myringitis bullosa. The presence or absence of lipid in the fluid would quickly confirm or disprove the diagnosis in doubtful cases.

These asymptomatic lipid blebs at the umbo have been observed more often in my practice than have acute vesicular lesions of the tympanic membrane. Once

*Read before the Section on Ophthalmology and Otolaryngology, Medical Society of the State of North Carolina, Pinehurst, May 2, 1956.



Fig. 1. Photograph of intra-epidermal external umbo bleb of the right tympanic membrane.

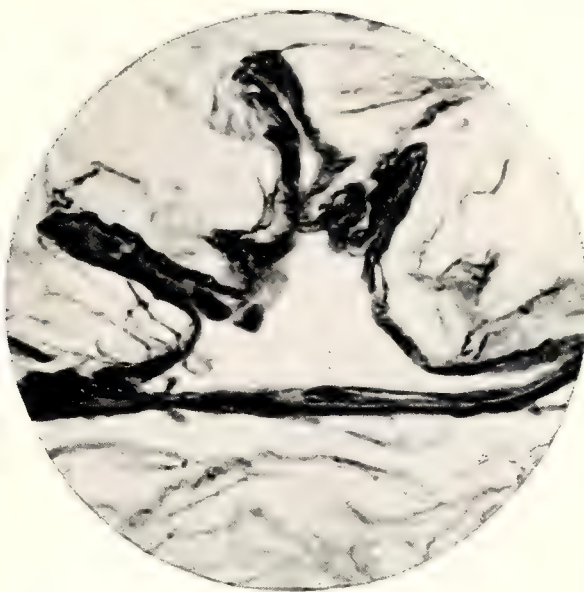


Fig. 2 Photo micrograph (400 x) of intra-epidermal umbo bleb. There is no evidence of intracellular edema or inflammation.

recognized, they are found with increasing frequency. The lack of symptoms accounts for the fact that many are overlooked. No treatment is necessary. The significance of these blebs and their etiology remain unknown.

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1. Armstrong, R. W.: External Umbo Blebs—Noninflamma-

tory Lipoid Vesicles of the Tympanic Membrane, *Laryngoscope*, 65:817-828 (Sept.) 1955.

2. Lathrop, F. D.: Personal communication.

3. Arnold, Ralph: Personal communication.

4. Burns, Stanley S., Jr.: Personal communication.

5. Wible, L. E.: Umbo in Secretory Otitis Media, *Arch. Otolaryngol.* 55:468-470 (April) 1952.

6. Friedman, O.: Hydrops at the Umbo, *N. Y. J.* 54:1634-1638 (June) 1954.

Chemoprophylaxis . . . the chemoprophylaxis of infection requires more intensive and controlled study than it has received. It is obvious that some serious diseases can be completely prevented by proper administration of antibacterial agents. The degree of success appears to be highest when the prophylactic measures are aimed at specific microorganisms. On the other hand, there are a number of conditions in which the use of antibiotics for protection against bacterial invasion is not justified, either because this type of complication is very uncommon or because there is proof that the desired result will not be produced. It is striking that the clinical areas in which prophylaxis has been applied most widely are those in which its use has been mainly on clinical impression rather than on fact derived from careful study. It is in some of these situations that more investigation is necessary before the true value of the choemoprophylaxis procedures which have been employed can be determined.—Weinstein, L.: The Chemoprophylaxis of Infection, *Ann. Int. Med.* 43:295 (Aug.) 1955.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

OCTOBER, 1956

DOCTORS AND HOSPITALS

Within the past decade or more some hospitals through their lay boards of trustees have sought to exercise increasing control over medical staff members. In our own state a Committee on Professional and Hospital Relations was appointed in 1949 "To investigate and solve, if possible, charges of unethical practices against a hospital by a physician, or of a hospital against a physician," and "To investigate all complaints relative to the unethical and illegal corporate practice of medicine." This committee reported in 1950 that all complaints against hospitals "involve efforts of the hospitals to control the practice of medicine and to make a net profit on the professional fees of its staff members."

One of the principal offending hospitals investigated by this committee was the Robeson County Memorial Hospital. It was reported that this trouble began about ten years ago, when the staff members agreed to let the hospital business office collect their fees and keep 10 per cent to be set aside for the construction of a new wing, and that later this "contribution" was increased by a graduated income assessment ranging from 10 to 50 per cent of the fees.

After the investigation by the State Society's committee, the Fifth District Councilor reported that "The Fifth District's most outstanding example of the corporate practice of medicine was settled peacefully by the local group." Unfortunately this statement must have been based on wishful thinking, for it is an open secret that the trustees and medical staff of the hospital have been in conflict since then. A deputation from the Robeson County Medical Society, headed by its president, Dr. Theo H. Mees, came before the Executive Council at its meeting on September 30, to ask advice in dealing with a resolution adopted by the Executive Committee of the Board of Trustees of the Robeson County Memorial Hospital August 6, 1956. This resolution stated that:

(1) Each patient entering Robeson County Memorial Hospital, or the person or party legally responsible or agreeing to become responsible for his bill for services and expenses therein, in consideration of his admittance to the Hospital and the services to be rendered to him therein, and as a condition of his admittance to the Hospital, shall be required to agree and contract in writing to pay his hospital bill for services and expenses prior to paying the bill of any physician for services rendered him while an occupant of the hospital, and shall be required to agree and contract in writing to accept and abide by the rules and regulations of the Hospital with respect to priority of payment of Hospital bills before physicians' bills and with respect to conditional payment of physicians' bills.

(2) The Administrator of the hospital shall require all patients or such other person or parties to accept and sign appropriate written agreements at the time of the admittance of said patients to the Hospital.

"RESOLVED FURTHER, that the Administrator of the Hospital take due note of any willful violation by any member of the Medical Staff of the Rules and regulations

of the Hospital with respect to priority of payment of the Hospital bills before physicians' bills arising upon bills and accounts of patients admitted to the Hospital on and after June 4, 1956, regardless of whether or not such patients have signed the aforementioned agreement.

"RESOLVED FURTHER, that in the event of the willful violation by any physician of the aforesaid rules and regulations, the Executive Committee of the Board of Trustees shall recommend to the Board of Trustees that such physician not be re-appointed to the Medical Staff at the end of his term of appointment.

"RESOLVED FURTHER, that a copy of these resolutions be forwarded to each member of the Medical Staff of the Hospital."

On August 15 the medical staff of the Robeson County Hospital met and adopted a resolution vigorously protesting the action of the hospital trustees, which was taken "without consultation, advice, conference, or approval of a single member of the Medical Staff or of their appropriate committees." The resolution said in part:

"WHEREAS, these statements and principles in these resolutions, as adopted by the Board of Trustees, would appear to be discriminatory, unreasonable and unfair to the Medical Staff, individually and collectively; and

"WHEREAS, the Medical Staff, individually and collectively, feel obligated to express themselves on action vital to their relations with their patients,

"THEREFORE, BE IT NOW RESOLVED THAT:

- (1) The Medical Staff of the Robeson County Memorial Hospital expresses and so informs the Board of Trustees of Robeson County Memorial Hospital that the action concerning collection of accounts as adopted by the Executive Committee and/or the Board of Trustees of Robeson County Memorial Hospital on June 4, 1956, July 26, 1956 and August 6, 1956, is considered to be objectionable by the Medical Staff; and
- (2) The Medical Staff in view of the concise and clear demands so outlined by the Board of Trustees of Robeson County Memorial Hospital feels it necessary to present these

resolutions as adopted, to the Executive Council of the North Carolina Medical Society, via the County Medical Society, for their advice and recommendations."

After the Robeson County deputation was heard, Dr. Westbrook Murphy offered the following resolution:

"First, that the Medical Society of the State of North Carolina approve the action of the Robeson County Memorial Hospital staff in resisting this action by the Board of Trustees of that Hospital, and that it pledges to them the full moral, legal and financial support of all the resources of this Society to assist them in this fight.

"Second, if and when any licensed physician of Robeson County is denied the privilege of the Hospital because of his refusal to participate in this scheme, that they through their counsel pursue it through the Courts of North Carolina to its ultimate termination.

"Third, that it is the sense of the Executive Council of the Medical Society of the State of North Carolina that any doctor who agrees to participate in the scheme of this character is guilty of unprofessional conduct which is prejudicial to the best interest of the public and to the welfare of medicine in North Carolina, and on those grounds he may reasonably expect to be summoned before the Society to show cause why he should not be expelled.

"Fourth, that if and when a man should be denied membership in the Medical Society of North Carolina on these grounds, the matter will be referred to the State Board of Medical Examiners so that they may consider it in the light of a possible revocation of his license.

"Fifth, that a copy of this Resolution be forwarded to the Administrator and the Chairman of the Board of Trustees of the hospital and to every member of the Robeson County Medical Society."

A second closely related motion made at the request of the State Board of Medical Examiners was also adopted unanimously:

That the State Society appoint a committee and ask the North Carolina Hospital Association to appoint a companion committee to get together and try to formulate a code for the guidance of both organizations.

A third motion which was also passed unanimously was that President Koonce appoint a commission "to make a survey and study of the encroachment of third party agencies on the private practice of medicine in the State of North Carolina, and to recommend to the House of Delegates the adoption of a long range program to try to preserve the private practice of medicine in the State of North Carolina."

It is to be hoped that these actions of the Executive Council will bear fruit. Certainly hospitals and physicians are natural allies in the war on disease, and they should plan to work together for the benefit of the patient. Undoubtedly the great majority of hospital trustees and of doctors are honest and reasonable men who should be able to get together in the traditional American way and settle their problems and their differences.

* * *

DOCTORS AS PATIENTS

Dr. Donald Koonce's President's Message, in this issue, is a timely and thoughtful discussion of the doctor's human side. By coincidence, the same mail that brought his message brought the September number of the *Illinois Medical Journal*, and its leading editorial, "Do as I Say," dealt with the same idea, from a different angle. Its theme was that "Physicians might be more sympathetic toward their patients if they themselves were ill more often and in need of surgery, gastric analyses, prostatic massages, or proctoscopic examinations." Doctors should explain to patients the reason for various tests that may be ordered, and allay their fears about their possible harmful results.

The editorial said that every physician should be a patient, and that there would be fewer "don'ts" "if physicians tried to break a few of their own habits or if they went on a low salt or 800 calorie diet . . . It also has been suggested that every physician use on himself the samples of medicine he receives."

Some years ago an older physician was being treated for influenza by a younger colleague, who ordered a bottle of cough medicine from the drug store. The next day the patient asked, "What in the hell was that stuff you sent me yesterday?" When the attending physician replied that

it was the mixture that the sick doctor had for many years, been prescribing for his patients, the older man said, "Well, if the Lord will forgive me, I will never prescribe another dose of it. I had no idea how it tasted."

Doubtless both Dr. Koonce and the Illinois editorial writer would agree with Dr. Stephen Paget when, in his classic *Confessio Medici*, he told the young doctor that he wished him, early in his career, "a serious illness, or an operation, or both. For thus, and thus alone, may you complete your medical education, and crown your learning with the pure gold of experience."⁽¹⁾

1. *Confessio Medici*, The Macmillan Company, 1909, page 105.

* * *

THE "ROCKEFELLER DIET"

The appetite of the public for advice on diet seems to be as insatiable as is that of the fat lady in the circus. For weeks the hodgepodge of pseudo-scientific nonsense, "Arthritis and Common Sense," has been at the top of best seller lists. Another book, written by a Miss Davis, states that the author could tell vitamin deficiencies by inspecting the tongues, that more than 90 of 100 individuals were deficient in certain vitamins!

One of the most wide-spread current literary broadcasts anent diet was based on the so-called "Rockefeller Diet," first published by Dole et al. in scientific publications, with relevant data. The diet, without the qualifying data, was published in *Look* magazine and in the *Ladies Home Journal*. It calls for a mixture of corn oil, dextrose, evaporated milk and water, and is said to be quite palatable. Maybe it is to an infant. It is said to resemble closely mother's milk, and the L. H. J. article states that "The formula is a complete food mixture."

Those doctors who have been pestered by their fat patients about the diet—and who has not?—should read the special article "Low-protein Diets for Reducing," by Norman Jolliffe, and the report of the Council on Foods and Nutrition in the *Journal of the American Medical Association* for August 25, so that they may warn the inquiring ones of the dangers of a diet so low in proteins, vitamins, minerals and iron. It seems that the layman will never learn that there is no safe quick and easy way to reduce and stay reduced.

President's Message

A DOCTOR IS FIRST A HUMAN BEING

Much has been said recently about the practice of the humanities of medicine. There is nothing complicated about this practice. It is simply the practice of a doctor remembering that he is a human being ministering to other human beings and treating his patients in the manner that he would like to be treated were he in that patient's place.

It sometimes happens that a doctor begins to feel that he is a little different from other people and has more godlike qualities than the average man. That doctor is doomed to frustration and unhappiness and his patients to disillusionment. A doctor does not and should not have any godlike powers in the giving and taking of life. He has simply allowed himself to be trained so that, with the help of God, in many instances he may save life and preserve the physical integrity of the human body. A doctor is privileged to be so closely associated with life and death that it is difficult to see how one could ever question the power of God.

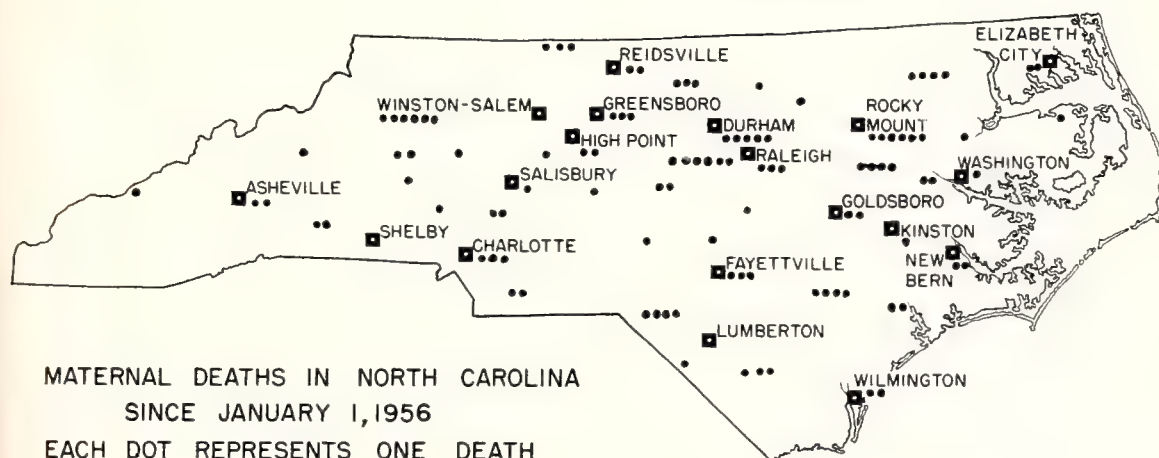
It is understandable how too frequently a patient attributes godlike qualities to his doctor. This is understandable because a doctor who practices the humanities of medicine is not just a doctor of medicine. He is a healer of the sick, both physically and mentally, a father confessor, and a beloved friend in the time of need. That patient who attributes divine powers to his doctor is also doomed to disappointment

and disillusionment. His doctor is still a very human being and made of clay. He has no supernatural physical abilities which would allow him to work day and night without rest or to be readily available each and every time that patients may need him. He does not have the divine ability always to make unerring decisions and always to give the right advice. He is not immune to human frailties and weaknesses and he has no unnatural ability to resist the temptations of life any more than any other man. He does not have the power, without God's direction, to perform the seeming miracles attributed to him. He must be strong, and yet he cannot help but be humanly weak. He must be dependable, and yet he must have many failures. He must be human, and yet he must even be more lovable.

—Donald B. Koonce, M.D.

From A Doctor To Doctors

A unique medical publication, **Medical Director's Notebook**, from Paul F. MacLeod, M.D., medical director of Eaton Laboratories, Norwich, N. Y., is now being sent monthly by Eaton Laboratories to thousands of physicians throughout the country. The "Notebook" reads like a physician's Elbert Hubbard Scrapbook: it discusses anything and everything that might be of interest to a doctor—informally, philosophically and authoritatively—and reports to the doctor on some of the problems a professional pharmaceutical industry faces.



Committees and Organizations

THE AMERICAN PHYSICIAN AND THE WORLD MEDICAL ASSOCIATION

LOUIS M. BAUER, M.D.*

The World Medical Association has become a strong factor in protecting and promoting the professional interests of the medical profession and the cause of world peace.

Now in its ninth year, W.M.A. is a federation of the most representative national medical association in each of 52 nations. These member organizations represent more than 700,000 physicians. The American Medical Association is a leading member of The World Medical Association.

Doctors of medicine the world over cherish the same basic ideals of conduct and the same devotion to the welfare of mankind. The World Medical Association is cultivating the common purposes of the profession. This growing community of interest is a source of strength to the physicians in every land.

Already, by solid accomplishments, W.M.A. has earned the right to call itself "the international voice of organized medicine." Thanks largely to the United States Committee and similar supporting committees of physicians in other leading nations, W.M.A. has a well tried constitutional structure, a small but efficient secretariat, and a tri-lingual journal whose world-wide influence and value to the profession is rapidly growing. The permanent office of the secretariat—which serves both the Association and the United States Committee—is located in the United States.

The membership of the United States Committee has been growing slowly but steadily. In 1955 the Committee reached its first important milestone of growth: a membership of 5,000 American physicians.

Even with this modest membership representing scarcely 3 per cent of American medicine, important achievements have been registered, many of which would have been impossible if the American pharmaceutical and related industries had not constantly matched the financial support given

the United States Committee by its physician members.

Last year 176 members of the United States Committee attended the ninth General Assembly of The World Medical Association in Vienna. This privilege is available to members of national supporting committees. There is unique inspiration, personal enjoyment and intellectual stimulus in meeting our colleagues from many lands, and in helping to formulate programs that may have incalculable benefits for the profession, and for the welfare of the world.

The World Medical Association assists traveling physicians by providing them with introductions to colleagues in other countries, by making speaking engagements for them abroad, by acquainting them with visiting doctors from other countries, and, of course, by sending the *World Medical Journal* to members of all national supporting committees.

In 1953 The World Medical Association sponsored the First World Conference on Medical Education, held in London. Representatives from many nations have reported concrete benefits from this epochal meeting in terms of better standards and practices in medical education in their countries. A Second World Conference on Medical Education is now being planned for 1959, to be held in the United States.

Two other World Medical Association accomplishments that have brought great credit to our profession and strengthened its solidarity throughout the world were the promulgation in 1948 of the Declaration of Geneva, comprising a modern restatement of the Hippocratic Oath, and the adoption in 1949 of an International Code of Medical Ethics.

The activities of W.M.A. in the field of social security are of particular interest to American physicians. They have revealed boldly and unmistakably the physician's inherent and universal need for freedom from third-party interference with the practice of medicine. Such activities should not only fortify but inspire the efforts of American medicine to solve our socio-economic problems without resort to governmental subsidy or control.

On the international stage, The World Medical Association has endeavored to counter efforts of the International Social Security Association and the International

*Secretary-Treasurer, the United States Committee, World Medical Association.

Labour Organization to promote state medicine under social security programs. The World Medical Association has earned the respect of the International Labour Organization for its defense of the interests of medicine against the International Labour Organization Convention for Medical Socialization in 1952. Now The World Medical Association is attempting to wrest from the International Labour Organization the recognized world leadership in the field of occupational medicine.

The World Medical Association has engaged in efforts to protect medical research, and to safeguard the National Pharmacopoeias and the rights of individuals discovering new drugs and agents to name them.

The World Medical Association has served the profession by representing it in relation to the World Health Organization—the official health agency of the United Nations. In the attempt by WHO and other agencies to draft an International Code of Medical Law, W.M.A. has insisted that such a code be based upon ethical principles acceptable to the profession.

For all these activities, and for many more which demand our attention, additional funds are needed. Each new member not only contributes his nominal membership dues, but, more vitally, he lends his name and influence to the program of the W.M.A. and of its United States Committee.

America's world leadership challenges America's physicians to make the United States Committee a truly impressive and representative body of American physicians.

Every individual physician in the United States is eligible for membership in the United States Committee. Annual membership dues are \$10.00. The dues for Patron Members are \$100.00 or more. Many of our members regularly make contributions to the United States Committee, in addition to their annual dues. All such contributions to this committee are tax deductible.

As the international voice of organized medicine, The World Medical Association is speaking for you. It is seeking to promote and protect your interests. You are urgently invited to help these efforts along, by joining the United States Committee, and participating in its work.

The following article was received from the Council on Medical Service of the American Medical Association.

* * *

The Program of the Sears Foundation To Improve Medical Care

The American Medical Association has, for the past two years, been cooperating with the Sears-Roebuck Foundation in a program which it is hoped will supplement all our placement service efforts in providing improved medical care where there is the greatest need.

The Foundation makes an annual grant of \$125,000 which is placed in a revolving fund and made available to physicians desiring to establish practices or to improve existing facilities. In some instances the expansion and improvement of existing facilities will be of greater value in providing more adequate medical services than the building of a new facility. The primary objective is to improve medical services and facilities in suburban and rural areas. This grant will be continued for a period of ten years providing there is an actual need for the program.

The Foundation's Medical Advisory Board, appointed by the trustees of the A.M.A., screens all applications for loans available from this fund. These board members represent various geographical areas and may be called upon for assistance and advice regarding the loan program. North Carolina is represented in the Southern territory, and Drs. David Henry Poer, of Atlanta, Georgia, and J. P. Culpepper of Hattiesburg, Mississippi, serve as this region's representatives on this Board. All applications will be screened first by them.

The interest rate ranges from zero to 6 per cent over a 10-year period depending on the rapidity of repayment. There is no charge for administering the program, as this cost is met by additional Foundation Funds. To date the Foundation has made 22 loans, affecting 33 physicians, in 13 states, totalling \$172,000. Loans have gone to general practitioners, specialists, partnerships, and medical groups. So that applications may be processed efficiently, there are two cut off dates . . . October 1, and April 1. Applications received prior to October 1 will be decided upon no later than December 15. Applications received between October 1 and April 1 shall be decided upon no later than June 15.

Every placement service receives requests for information concerning areas where there is a need for a physician and also requests from physicians seeking locations. It may be that the Sears Foundation revolving assistance fund can be of value in such cases.

Copies of this Plan of Assistance brochure are available through the State Medical Society headquarters office. Please make your requests to Mr. James T. Barnes, Executive Secretary.

This program can be of service to all of us in our efforts to provide improved medical care in those areas of need in our state.

BULLETIN BOARD

COMING MEETINGS

Eighth District Medical Society, Annual Meeting—Hotel Robert E. Lee, Winston-Salem, November 1.

Seaboard Medical Association, Annual Meeting—Rocky Mount, December 2-4.

Gaston Memorial Hospital Symposium—Gastonia, November 28.

Southeastern States Seminar on Cancer—Jacksonville, Florida, November 7-8.

American College of Obstetricians and Gynecologists, Fifth Annual Clinical Meeting—The Palmer House, Chicago.

American College of Chest Physicians, Ninth Annual Postgraduate Course—Hotel Sheraton, New York City, November 12-16.

American Public Health Association, Eight-Fourth Annual Meeting—Convention Hall, Atlantic City, November 12-16.

American Medical Association, Tenth Annual Clinical Meeting—Seattle, Washington, November 27-30.

Southern Branch, American Public Health Association—Asheville, May 29-31, 1957.

Bahamas Medical Conference—Naussau, December 1-15.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

The Duke University School of Medicine cordially invites you to attend and participate in its Thursday Teaching Program. This program begins Thursday, October 11, and will continue throughout the year on each succeeding Thursday.

The schedule of instruction is as follows:

- 10:00 a.m.-11:00 a.m.—Conference alternating between Pediatrics, Psychiatry, Obstetrics and Surgery
- 11:00 a.m.-12:00 noon—Clinicopathological Conference
- 12:00 p.m.- 1:00 p.m.—Medical Grand Rounds
- 1:00 p.m.- 2:00 p.m.—Lunch as the guest of the Faculty of the School of Medicine.

Those who desire to work in the various clinics or observe are cordially invited to do so. No previous arrangement is necessary for any of the above exercises.

Category I credit is allowed by the American Academy of General Practice. In order to obtain this credit, it is necessary to register with the Director of Postgraduate Medical Education, Duke Hospital.

A report on anesthesia, one of the newest fields in medicine, was telecast nationally from Duke Hospital on Sunday afternoon, September 16.

The half-hour show was the second in the 1956-1957 "Medical Horizons" series, and was carried live from coast-to-coast by the ABC television network.

"Medical Horizons" master of ceremonies Don Goddard came to Durham to interview Dr. C. Ronald Stephen, chief of Duke Hospital's Division of Anesthesiology. Scenes in the induction, operating, and recovery rooms of Duke Hospital demonstrated anesthesia techniques used to provide freedom from pain during surgery. Another portion of the program touched on recent advances in anesthesiology.

"Medical Horizons" is sponsored by Ciba Pharmaceutical Products, Inc. and produces the weekly program on medical advances in cooperation with the American Medical Association.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

A total of 66 freshman medical students began classwork at the University of North Carolina School of Medicine on September 20.

Among the 66 students, 62 are North Carolinians and 4 are from outside the state. One of these out-of-state students is the only woman in the class.

Dr. Carl E. Anderson, associate professor of biochemistry and nutrition, delivered the Whitehead Lecture held at Memorial Hospital on September 18. Dr. Anderson spoke on the subject "Aims of a Medical Education."

Planning sessions for postgraduate medical courses were held recently in Greenville and Edenton for courses to be offered during the winter, it was announced by Dr. W. P. Richardson, assistant dean for Continuation Education. The First District Postgraduate Medical Course will be held Wednesday afternoons and evenings for six weeks beginning January 23, and the Greenville Postgraduate Medical Course will be offered Thursday afternoons and evenings for six weeks beginning January 24. Dr. L. P. Williams is the chairman for the Planning Committee for the First District course, and Dr. John L. Watters is chairman of the Planning Committee for the Greenville course.

Dr. John N. Fortin, instructor in psychiatry at the University of North Carolina School of Medicine and psychiatrist of the University Infirmary, was one of two representatives from the South at the International Working Conference on Student Mental Health at Princeton University, September 5-15.

Prior to coming to Chapel Hill, Dr. Fortin was instructor in psychiatry at the University of Colorado and psychiatrist of the Student Health Service

there. He also has served as senior resident at the Cincinnati General Hospital of Cincinnati, Ohio.

* * *

Dr. Warner L. Wells, assistant professor of surgery, has recently been named to the editorial board of the *Journal of History of Medicine and Allied Sciences*. The *Journal* is published by the Yale University Press under the editorship of Dr. John F. Fulton, who is Sterling professor of the history of medicine, and keeper of medical history collections at Yale University.

* * *

Dr. Charles Raymond Spell recently was named assistant professor in the Department of Medicine in Biochemistry. This is a department of the University of North Carolina School of Medicine. He received his A.B. degree from Wofford College, his M.S. degree from the University of Georgia, and his Ph.D. degree from UNC last year.

* * *

Dr. J. Logan Irvin, associate professor of biochemistry, has recently completed nine months of research at the National Institutes of Health at Bethesda, Maryland. His research on the biosynthesis of proteins and nucleic acids of normal liver and of liver tumors was supported by a fellowship from the Guffenheim Memorial Foundation. This work was done in collaboration with Dr. George H. Hogeboom, chief of the Section on Cellular Physiology of the National Cancer Institute, and Dr. DeWitt Stetten, associate director of the National Institute of Arthritis and Metabolic Diseases. His wife, Dr. Elinor Moore Irvin, also was associated with him in this research.

* * *

A bronze display case has been presented to the North Carolina Memorial Hospital at the University of North Carolina by Mrs. Birdie Pritchard Davis in memory of her late husband, Dr. Royall O. E. Davis.

Dr. Davis received his Bachelor's degree from the University of North Carolina in 1901, and was awarded a Ph.D. degree in 1903. He remained at the University as a member of the faculty until 1909.

Mrs. Davis is a volunteer worker at the hospital. She has been doing volunteer work since the Hospital actually opened September 2, 1952. At the present time, Mrs. Davis averages 160 hours a month volunteer work.

Dr. Robert R. Cadmus, director of Memorial Hospital, said the display case would be used for various types of exhibits concerning the Division of Health Affairs.

GASTON MEMORIAL HOSPITAL SYMPOSIUM

Dr. Nicholson J. Eastman, professor of obstetrics at Johns Hopkins University and obstetrician in chief at Johns Hopkins Hospital, will be the guest speaker for the Fifth Annual Gaston Memorial Hospital Symposium to be held in Gastonia on Wednesday, November 28. Dr. Eastman will

speak at 4:00 p.m. on "Apnea Neonatorum," and his topic for the evening meeting will be "Maternity Care in Global Perspective."

All sessions will be held at the Masonic Temple.

AMERICAN CANCER SOCIETY North Carolina Division

"Breast Cancer" was discussed at the Medical Session of the annual meeting of the American Cancer Society, North Carolina Division, held October 14, at the Sir Walter Hotel, Raleigh. Speakers were Dr. Cushman D. Haagensen, professor of surgery, Columbia University Medical School and Presbyterian Hospital, New York; and Dr. Robert P. Morehead, professor of pathology, Bowman Gray School of Medicine, Winston-Salem.

NORTH CAROLINA STATE BOARD OF HEALTH

On Saturday, September 22, Radio Station WPTF in Raleigh, began broadcasting the State Board of Health program—"Your Health and You"—at 6:15 p.m. rather than 1:15 p.m. as formerly. The change is expected to give the program many new listeners.

The same program, in narrative form, is carried over Station WWNC, Asheville each Saturday morning at 9:15. As a public service, Station WPTF tapes both programs, without cost to the state, sends one tape to Asheville, and retains one for broadcast from Raleigh. The scripts are written by William P. Richardson of Raleigh.

* * *

The opening of the hunting season in North Carolina drew a sharp reminder from safety specialists of the North Carolina State Board of Health to guard against accidental deaths and injuries from firearms.

Dr. Charles Cameron, Jr., accident epidemiologist of the Board of Health, cited the 50 deaths from firearms in 1955 and the 83 deaths in 1954 as a grim warning of the dangers associated with the handling and use of firearms.

The Board of Health passes on these ten commandments of gun safety:

1. Treat every gun with the respect of a loaded gun.
2. Always unload a weapon before putting it away and then store it in a place inaccessible to children.
3. Always carry a gun so that the direction of the muzzle can be controlled even if the hunter should stumble.
4. Be sure of the target before pulling the trigger.
5. Never leave a gun unattended unless you unload it first.
6. Never climb a fence or tree with a loaded gun.
7. Never shoot at a flat, hard surface or the surface of water.
8. Never point a gun at anything you don't want to shoot.
9. Gunpowder and alcohol make a lethal mixture.

NORTH CAROLINA HEART ASSOCIATION

A new film, which takes the observer behind the scenes in research laboratories where men of science work to unravel the secrets of the heart, is now available for public showings, according to an announcement by the North Carolina Heart Association. William W. Wood, executive director of the State Heart Association, described the film as "a tribute to scientists and research centers dedicated to the search for truth."

"Secrets of the Heart" is the title of the film, which is available for showings, to students and teachers, physicians, nurses, and social and civic clubs by application to chapters of the Heart Association or local Heart Committees. Inquiries may also be addressed to the North Carolina Heart Association, Miller Hall, Chapel Hill.

As a result of the 1956 Heart Fund drive last February, more than \$80,000 has been granted to heart scientists in the three medical schools of the state.

* * *

The North Carolina Heart Association held its seventh annual meeting in Asheville on September 15 and 16. Participating in the program were Dr. Harold D. Green of The Bowman Gray School of Medicine; Drs. E. Harvey Estes, Albert Heyman, and John B. Hickman of Duke; and Drs. Edward C. Curnen and Myron G. Sandifer of the University of North Carolina.

EIGHTH DISTRICT MEDICAL SOCIETY

The annual meeting of the Eighth District Medical Society will be held Thursday, November 1, at the Robert E. Lee Hotel in Winston-Salem. The following program has been arranged:

2:30 p.m.—Panel Discussion: "The Diagnosis and Management of Coronary Disease"—Dr. J. J. Crutchfield, leader; Dr. Glenn Sawyer, Dr. Emory Miller, and Dr. Kenneth Tyner

Intermission—10 minutes

Panel Discussion: "The Diagnosis and Management of Gallbladder and Biliary Tract Diseases"—Dr. Richard Myers, leader; Dr. George Wood, Dr. James Marshall, and Dr. David Cayer

5:00 p.m.—Social Hour

6:00 p.m.—Banquet

"These Days of our Life"—Dr. Dale Gramley, President of Salem College and Academy.

Ladies are cordially invited to attend the meeting. A suite of rooms, light refreshments, and numerous attractions will be provided for their entertainment. A brief meeting of the Medical Auxiliary will be held at 4:30 p.m.

Physicians are urged to mark this date on their calendar now. Reservation cards will be mailed at a later date.

SEABOARD MEDICAL ASSOCIATION

The Seaboard Medical Association will hold its sixty-first annual meeting at the Ricks Hotel, Rocky Mount, December 2, 3, 4. This meeting is being held later than usual this year so that it will not conflict with the Southern Medical Association meeting in Washington, D. C.

RALEIGH ACADEMY OF MEDICINE

The Raleigh Academy of Medicine will hold its eighth annual symposium at the Carolina Hotel in Raleigh on Thursday October 25. The program, which will deal with disorders of the chest, has been arranged to interest all groups of the medical profession.

Speakers will be Dr. Edward A. Gaensler of Boston, Dr. Gustof E. Lindscoq of New Haven, Dr. Ralph Alley of Bonton, and Dr. K. Maxwell Chamberlain of New York.

All physicians are invited to be guests of the Academy for this meeting.

SOUTHERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION

The Southern Branch of the American Public Health Association will meet in Asheville, May 29, 30, and 31, 1957. Other scientific organizations are urged to note the dates in order to avoid conflicts.

ROBESON COUNTY MEDICAL SOCIETY

The Robeson County Medical Society held its monthly meeting September 4, at the Lorraine Hotel, Lumberton. Guest speaker was Dr. Will C. Sealy, professor of thoracic surgery, Duke University School of Medicine, Durham. He spoke on "Diseases of the Chest."

New members welcomed to the Society were: Dr. Howard E. Strawcutter and Dr. Clarence M. Easley of Lumberton, and Dr. J. Lloyd Pate of Bladenboro.

The officers for this year are Dr. T. H. Mees, president; Dr. R. E. Hooks, vice president; and Dr. D. E. Ward, Jr., secretary and treasurer.

EDGEcombe-NASH MEDICAL SOCIETY

Dr. Woodall Rose was in charge of a forum on medicolegal problems at the September meeting of the Edgecombe-Nash Medical Society. A number of lawyers participated in the discussion, which was then opened for comments and questions by the members of the society.

NEWS NOTES

Dr. James B. Lounsbury has announced the removal of his office to 1006 Grace Street, Wilmington. His practice is limited to obstetrics and gynecology.

* * * *

Dr. Vernon H. Youngblood has announced the association of Dr. Edwin M. Tomlin in the practice

of urology and urologic surgery at the Youngblood-Tomlin Clinic, Kannapolis Highway, Concord.

* * * *

Dr. James A. Barnes has opened his office for the practice of pediatrics at William and Mary Apartments, 405 North Spring Street, Winston-Salem.

* * * *

Dr. Paul L. Garrison has opened his office for the practice of internal medicine at 720 West Fifth Street, Winston-Salem.

* * * *

Dr. Louis C. Spillman has announced the opening of his office for the general practice of medicine in the Blalock Building, Pilot Mountain.

* * * *

Dr. John R. Bumgarner has opened his office for the practice of cardiology at 342 North Elm Street, Greensboro.

SOUTHEASTERN STATES SEMINAR OF CANCER

The Southeastern States Seminar on Cancer will be held in Jacksonville, Florida, on November 7 and 8. The preliminary program is as follows:

November 7

Morning

Early Recognition and Treatment of Breast Tumors—Dr. Everett D. Sugarbaker

Treatment of Recurrent and Late Carcinoma of the Breast—Dr. Elliott Scarborough

The Value of Extended Surgery for Carcinoma of the Breast: (a) Internal Mammary Dissection; (b) Oophorectomy; (c) adrenalectomy; (d) Hypophysectomy—Dr. Sugarbaker

Panel Discussion on Management of Carcinoma of the Breast: Dr. Sugarbaker, chairman; Dr. Scarborough, Dr. Eugene P. Pendergrass, and Dr. William Meissner

Radiological Aspects of Malignant Tumors of the Lung—Dr. Pendergrass

Surgical Aspects of Malignant Tumors of the Lung—Dr. Alton Ochsner

Afternoon

The Role of Cytology in Early Diagnosis of Malignancies: Dr. Emerson Day, chairman; Dr. Cyrus C. Erickson, Dr. Ruth Graham

Treatment of Carcinoma of the Cervix—Dr. Willard Allen

Panel Discussion on Female Genital Neoplasm Other Than Carcinoma of the Cervix: Dr. Allen, chairman, Dr. Day, Dr. Erickson, Dr. Graham, Dr. Meissner, Dr. Pendergrass, Dr. Scarborough

Tumor Therapy—Dr. Alfred Gellhorn

November 8

Morning

Carcinoma of the Stomach—Dr. George T. Pack
Incidence, Detection, and Management of Polyps of the Colon and Rectum—Dr. Michael R. Deddish

The Role of Radiology in Early Detection of Colonic Tumors—Dr. Robert D. Moreton

Recent Advances in Management of Cancer of the Colon—Dr. Richard B. Cattell

Panel Discussion on Diagnosis and Treatment of Carcinoma of the Colon and Stomach: Dr. Deddish, Chairman; Dr. Cattell, Dr. Meissner, Dr. Robert D. Moreton, Dr. Pack

Precancerous Skin Lesions, Hemangioma, Cutaneous Carcinogenic Effect of Sunlight, and Basal Cell Epithelioma—Dr. George Clinton Andrews

Afternoon

Tumors of Soft Tissues—Dr. Pack

Squamous Cell Epithelioma and Melanoma—Dr. Andrews

Panel Discussion on Tumors of the Skin and Subcutaneous Tissue: Dr. Andrews and Dr. Pack
Carcinoma of the Larynx: Present Concept of Management—Dr. Danely P. Slaughter

Surgery and Radioactive Iodine in the Management of Tumors of the Thyroid—Dr. Edgar L. Frazelle

Panel Discussion on Tumors of the Head and Neck: Dr. Scarborough, Chairman; Dr. Cattell, Dr. Frazell, Dr. Meissner, Dr. Slaughter

BAHAMAS MEDICAL CONFERENCE

The next Medical Conference of the Bahamas will be held in Nassau December 1-15. Informal meetings and discussion groups will be held at convenient hours, allowing ample time for recreational activities.

Special reduced hotel rates have been arranged for the participants in the conference and their families. Reservations and travel arrangements may be made through the Allen Travel Service, Inc., at 550 Fifth Avenue, New York 36, New York.

For tax purposes a certificate will be issued to doctors taking part in the conference. The registration fee is \$75. There are no other fees.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

Two New Health Films

The A.M.A. Film Library recently acquired two non-technical films that explain the functions of the heart and endocrine glands. Both films are so simply and effectively illustrated that they may be understood by any lay audience. Designed primarily for college hygiene and health education classes, these films are excellent teaching devices for any public group a medical society might wish to reach. Bookings may be arranged through the Film Library. The films are entitled "Common Heart Disorders and Their Causes" (17 minutes), and "Endocrine Glands—How They Affect You" (15 minutes).

A.M.A. to Co-Sponsor Medico-Legal Films

A series of films on medico-legal problems will be produced by the pharmaceutical firm of William S. Merrell Co. of Cincinnati in cooperation with the A.M.A.'s Law Department. The first film—dealing with the doctor as a medical expert witness—will be previewed next month (November) at the A.M.A.'s Clinical Session in Seattle. This film will be available for showings at state and county medical society meetings after December 15.

A.M.A. Cooperates In Industrial Health Program At Safety Congress

At the National Safety Congress to be held this month (October) in Chicago, the A.M.A.'s Council on Industrial Health is co-sponsoring a special program on "Medicine in Industry" with the American Society of Safety Engineers and the Occupational Health Nursing Section of the National Safety Council. The one-day session held on October 25 will feature outstanding medical authorities discussing the following: (1) "The Injured Back in Industry"—J. Huber Wagner, M.D., chief surgeon, U. S. Steel Corp., Pittsburgh; (2) "Vision in Industry"—E. B. Spaeth, M.D., chairman, A.M.A. Committee on Estimation of Loss of Visual Efficiency, Philadelphia; (3) "Physical Examination of Industrial Workers"—O. T. Mallery, Jr., M.D., director, Institute of Industrial Health, University of Michigan, Ann Arbor; Logan T. Robertson, M.D., Occupational Health Services, Asheville, North Carolina, and Charles E. Thompson, M.D., Health Research Center, Chicago.

All Aboard for A.M.A.'s Meeting In Seattle

A.M.A.'s Tenth Clinical Meeting, to be held November 27-30 in Seattle, will focus attention on the diseases and conditions most frequently met by America's family physicians. More than 2,500 physicians are expected to attend the meeting. Center of activities will be the Civic Auditorium where scientific sessions will be held and the more than 200 scientific and technical exhibits will be displayed. Headquarters for the House of Delegates and meetings of the Board of Trustees, councils and reference committees will be the Olympic Hotel.

Time to Book Those Exhibits for Next Year!

Attendance at state and county fairs this year exceeded all previous records in many areas, the A.M.A. Bureau of Exhibits reports. Since there seems to be a definite swing back to large attendance at such gatherings, medical society committees and executives are urged now to investigate the possibilities of exhibit space for next year. As soon as such space has been obtained, medical societies should contact the Bureau for reservations for specific A.M.A. health exhibits.

"March of Medicine" TV Show Reports On Missionary Medicine

The story of missionary medicine will be presented in a one-hour "March of Medicine" documentary telecast this month. The program will be beamed to the general public over 75 stations of the NBC-TV network Tuesday, November 27 at 9:30 p.m., EST, in place of the "Armstrong Circle Theatre." Check local newspapers for time of broadcast in your area.

Produced and sponsored by Smith, Kline and French Laboratories in cooperation with the American Medical Association, this will be the first medical program of its kind to be televised in color. The program will follow the daily activities of Dr. John E. Ross who has served for the past eight years as a mission doctor in the Belgian Congo.

A special showing of the missionary medicine film will be presented the same evening—November 27—at the A.M.A.'s Tenth Clinical Meeting in Seattle.

A.M.A. Produces New Radio Series On Medical Progress

A "hit parade" of popular songs and medical innovations of the years beginning with 1895 to the present is the theme of the American Medical Association's new radio transcription series. Entitled "Health and Harmony," this series of 13 programs traces medical progress in five-year intervals.

Medical information is presented by W. W. Bolton, M.D., and Fred V. Hein, Ph.D., of the Bureau of Health Education while the musical portions are by a barber shop quartet. This series will be released at the end of December. Further information may be obtained from the Bureau of Health Education.

Auxiliary Launches "Today's Health" Drive

Local Woman's Auxiliary groups are moving full steam ahead on the current **Today's Health** subscription drive. In keeping with the 1956-1957 national campaign theme of "Increased Reception Room Readership," auxiliaries are urged to place the popular A.M.A. health magazine in every physician and dentist office in the country.

A.M.A. Prepares List of Health Film Sources

Medical society program and public relations chairmen will be especially interested in the booklet entitled, "A List of Sources of Films on the Subject of Health," recently prepared by the A.M.A.'s Council on Scientific Assembly. The list includes the sources of motion pictures on the subject of health which have come to the Council's attention. The booklet is arranged in three parts: (1) loan, rental and sales libraries; (2) state health department film libraries; (3) catalogues and special film lists. For complete listings of films, physicians should write directly to the sources listed. Copies of this booklet may be obtained from Motion Pictures and Medical Television, A.M.A.

AMERICAN COLLEGE OF SURGEONS

The surgery of tomorrow as it is emerging from research in surgical problems and techniques today was described at the forty-second annual Clinical Congress of the American College of Surgeons held in San Francisco October 8 to 12. More than 200 separate reports of research projects in surgery were presented by teams of surgeons from medical centers and hospitals throughout the nation in the five-day Forum on Fundamental Surgical Problems, one of the leading features of the Congress.

Dr. Daniel C. Elkin of Lancaster, Kentucky, for many years professor of surgery at Emory University, Atlanta, Georgia, was installed as new president of the College at the annual convocation October 12, at which time 1,000 surgeons were initiated as fellows of the American College of Surgeons, bringing the total membership to nearly 22,000. The retiring president is Dr. Warren H. Cole of Chicago, professor of surgery at the University of Illinois College of Medicine.

THE FORD FOUNDATION

The Ford Foundation recently announced grants totaling \$21,750,000 to strengthen instruction in the 44 privately-supported medical schools now in operation in the United States.

The grants are in the amount of \$500,000 to each of 43 four-year institutions and \$250,000 to the two-year medical school at Dartmouth College, Hanover, N. H. They were authorized by the Foundation's board of trustees upon the recommendations of a special advisory committee headed by Dr. Lee DuBridge, president of the California Institution of Technology.

In announcing the grants the Foundation indicated it expects to disburse the balance of the \$90,000,000 appropriation during the current academic year.

Institutions receiving the \$500,000 grants included the Bowman Gray School of Medicine of Wake Forest College and the Duke University School of Medicine.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

December 1 is the deadline this calendar year for submitting applications to the National Foundation for Infantile Paralysis for postdoctoral fellowships. Applications submitted before that date will be considered by the appropriate National Foundation Fellowship Committee in February.

The next deadline for application will be March 1 for consideration in May.

For further information write: Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York City, New York.

SISTER ELIZABETH KENNY FOUNDATION

The Sister Elizabeth Kenny Foundation has announced a program of postdoctoral scholarships to promote work in the field of neuromuscular diseases. These scholarships are designed for scientists at or near the end of their fellowship training in either basic or clinical fields concerned with the broad problem of the neuromuscular diseases.

The Kenny Foundation Scholars will be appointed annually. Each grant will provide a stipend for a five-year period at the rate of \$5,000.00 to \$7,000.00 a year, depending upon the scholar's qualifications. Candidates from medical schools in the United States and Canada will be eligible.

Inquiries regarding details of the program should be addressed to: Dr. E. J. Huenekens, Medical Director, Sister Elizabeth Kenny Foundation, 2400 Foshay Tower, Minneapolis 2, Minnesota.

AMERICAN ASSOCIATION OF BLOOD BANKS

Eight hundred nineteen delegates attended the ninth annual meeting of the American Association of Blood Banks which met jointly with the Sixth Congress of the International Society of Blood Transfusion September 3-5, at the Somerset Hotel in Boston, Massachusetts.

The following officers of the American Association of Blood Banks were elected at its business session on September 4.

President—Dr. E. E. Muirhead, Dallas Texas

President-elect—Dr. Oscar B. Hunter, Jr., Washington, D. C.

Vice President—Dr. Morten Grove-Rasmussen, Boston, Massachusetts

Treasurer—Mrs. Bernice Hemphill, San Francisco, California (re-elected)

Secretary—Miss Marjorie Saunders, Dallas, Texas (re-elected)

The tenth annual meeting of the Association will be held at the Sherman Hotel in Chicago, Illinois, November 4-5-6, 1957.

AMERICAN PUBLIC HEALTH ASSOCIATION

Reports of experimental research on vaccines against viruses, including those associated with the common cold, will be presented before the eighty-fourth annual meeting of the American Public Health Association and meetings of 40 related organizations in Convention Hall, Atlantic City, New Jersey, November 12-16.

Progress and evaluation of a wide variety of public health activities, from prevention of highway accidents through fluoridation of community water supplies and statistical studies of chronic and mental disease, will be reported during 81 scientific sessions, according to Dr. Reginald M. Atwater, executive secretary of the association.

BOOK REVIEWS

The Neuroses In Clinical Practice. By Henry P. Laughlin, M.D. 802 pages. Price, \$12.50. Philadelphia and London: W. B. Saunders Company, 1956.

This is one of the most comprehensive books yet written on the neuroses. This review has been delayed because the reviewer waited until he could read the book literally from beginning to end. There is a good deal of repetition in it, but that makes it more valuable as a reference work. It is richly illustrated with actual case reports, 216 in all, which add to the effectiveness of the work.

The author develops the concept that anxiety is the basis of most neuroses, and calls the modern era the "Age of Anxiety." The first chapter is devoted to the nature and origins of anxiety. Succeeding chapters are devoted to The Anxiety Reactions, Intrapsychic Mechanisms of Defense; The Phobic Reactions; The Illusory Gains of Emotional Illness; The Conversion Reactions; The Dissociative Reactions; Depression; The Fatigue Reactions; Overconcern with Health; The Obsessive-Compulsive Reactions; and The Neuroses Following Trauma.

Not all psychiatrists would go as far as the author in following Freud. Virtually all the neuroses are charged to experiences in infancy or early childhood, and are treated chiefly by prolonged psychoanalysis. Dr. Laughlin's emphasis upon psychotherapy in preference to the short cut of shock therapy is perhaps a wholesome reaction against the overuse of the latter method; but many general practitioners have achieved good results by shorter sessions with patients, eliciting the mental conflict going on in the patient's mind, encouraging free mental catharsis, and then guiding the patient to reach a decision as to his future conduct.

One minor criticism is the author's habit of splitting infinitives, which is rather irritating to a medical editor. Perhaps, however, in noting literary mannerism the reviewer was influenced by his own obsessive-compulsive reaction.

The book can be recommended to anyone who wants an up-to-date reference work on the neuroses.

Sleep. By Marie Stopes. Price, \$3.00. New York: Philosophical Library, 1956.

The American public feels the need for more than two million doses of barbiturates annually. Unfortunately our statisticians can't break this down by sex or age; perhaps it is a good thing they can't, because the results might be frightening. For those who yearn to sample barbiturates or the newer, more flamboyant hypnotics but fear to do so, Dr. Marie Stopes has just provided us her considered opinion on **Sleep**. Since the late Robert Benchley's **How to Sleep** isn't readily available at

neighborhood drive-ins, Dr. Stopes' book deserves a hearing.

Some years ago she made her reputation in **Married Love and Enduring Passion**, so it is indeed fitting that **Sleep** follow in her later years. Since her treatment of **Married Love** is hardly in a class with John O'Hara's **Butterfield 8**, it follows that this book is not comparable to Washington Irving's more endurable Mr. Van Winkle either as comedy or as tragedy. Yet a reassessment of sleep is ever pressing. Frank Yerby and other graduates of the Augean stable school of historical romance have lowered the bed to new depths, leaving sleep to anesthesiologists and dreams to psychiatrists.

While Dr. Stopes obviously wallows in good intentions, she has apparently confused sleep with duplicate bridge, no mean feat. For she demands that beds be placed north-south. Now Mr. Goren's north-south hands always have good cards but this does not help us to understand what sailors can do about their unmagnetized hammocks. Anyway, Victor Hugo beat her to the polar theory; Joly in **Les Misérables** slept north-south, but that didn't cure his neurosis; nor did it prevent him from dying on the barricades.

Since this is the centennial of Freud's birth—and he certainly put sleep in its place—some further comments are indicated. For one thing Dr. Stopes lays claim to a sixth sense—North—somewhere "between my shoulder blades and hips." Now this clearly indicates a mineral component in prenatal life and even more obviously refers to the dust from whence we all came. Far be it from this reviewer to throw lodestones, but Dr. Stopes has been most unfair to Freud. She prefers the insight of F.W.H. Myers, a Victorian pioneer in studies of the psyche, who in truth was the first Victorian to discuss Freud's work in English journals. The good doctor even denies that the brain works all the time. Some brains may certainly be dormant too often, but not Dr. Stopes'. Yet there is most certainly a ready explanation: lack of central heating in England. Insufficient warmth in childhood is known to produce trauma which may pass unrecognized for long periods of time, while the thing desired early in life becomes the thought rejected in middle and old age. Within such narrow confines runs life, east-west as well as north-south.

It is fitting that Philosophical Library published this book, for it may be taken only philosophically. When one reads that "the modern tendency is over-acidity," and that a warm drink withdraws blood "from the brain," what else is a body to do? Dr. Stopes doesn't dream much either. More's the pity, for she is missing some of life's wildest chases and zaniest mysteries. Yet this could be remedied by trying some reserpine, which is said to foster most interesting dreams.

Dr. Stopes' book is amusing and irritating by turns. While it isn't much help in inducing sleep, it is a fine source for a few chuckles. Personally, this reviewer prefers Dr. Stopes' father's favorite Sunday hypnotic, a volume of Carlyle.

Application

FOR SPACE IN THE SCIENTIFIC EXHIBIT

1957 Annual Meeting
Asheville City Auditorium

Medical Society of the State of North Carolina
Asheville, N. C.

May 5, 6, 7, 8, 1957

Fill Out and Mail to:

EVERETT I. BUGG, M.D., Chairman

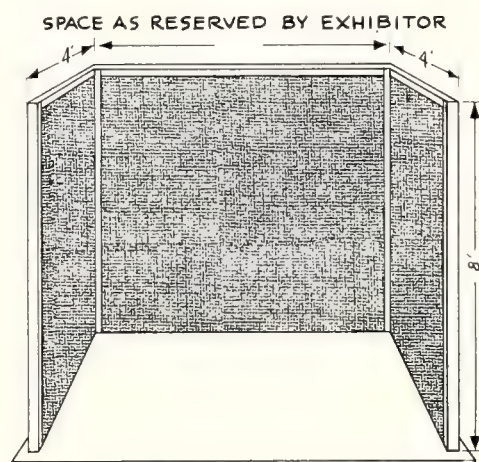
Committee on Scientific Exhibits

Broad and Englewood Streets

Durham, N. C.

**(Applications for space should be
received before December 31, 1956)**

Dimensions and structure of Medical Society of the State of North Carolina Scientific booth are shown in accompanying illustration.



1. Title of Exhibit: _____
2. Description or nature of exhibit: (Attach brief description to this blank).
3. Will you require shelf space? _____
4. Give approximate amount of back wall space needed. (Included in total space is two side walls of four feet in depth) _____
5. Name of institution co-operating in the exhibit (if desired) _____
6. Name of exhibitor: _____
7. Title: _____
8. Address _____ (Street & No. _____ (City) _____)
 - (a) First Associate
 - (b) Second Associate

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The Month in Washington

Regardless of which party organizes the next Congress or who occupies the White House, health and welfare legislation promises to take up considerable time and attention of lawmakers. There is nothing to indicate that the general subject of health has lost its appeal either to the public or to men who run for political office.

The national platforms on which the candidates of both parties have been campaigning are somewhat of a blueprint for the type of legislation to come in the Eighty-Fifth Congress, convening next January 3; generally, both parties advocate more rather than less federal participation in health and welfare programs. Here are some of the points in the two platforms:

Aid to medical schools. The Republicans recommend "federal assistance to help build facilities to train more physicians and scientists" as a supplement to action of the Eighty-Fourth Congress authorizing federal grants to schools and other groups for laboratory research facilities. The Democrats state: "We pledge ourselves to initiate programs of federal financial aid, without federal control, for medical education."

Aid to hospital construction. The Republican plank: "Republican leadership has enlarged federal assistance for construction of hospitals." The Democratic plank: "We pledge continuing and increased support for hospital construction programs."

Medical research. Republicans: "We have asked the largest increase in research funds ever sought in one year to intensify attacks on cancer, mental illness, heart diseases and other dread diseases." Democrats: "We shall continue to support vigorously all efforts, both public and private, to wage relentless war on diseases . . . We commend the Democratic party for its leadership in obtaining greater Congressional authorizations in this field."

Vocational rehabilitation. Republicans: "We have fully resolved to continue our steady gains in man's unending struggle against disease and disability." Democrats: "We pledge support to a vastly expanded rehabilitation program for these physically handicapped, including increased aid to states."

Medical care. Republicans: "We have encouraged a notable expansion and improvement of voluntary health insurance, and urge that reinsurance and pooling arrangements be authorized to speed this progress." Democrats: "We pledge . . . increased federal aid to public health services, particularly in rural areas."

Social security. Republicans: "We shall continue to seek extension and perfection of a sound social security system." Democrats: "By lowering the retirement age for women and for disabled persons, the Democratic Eighty-fourth Congress pioneered two great advances in social security . . . We shall continue our efforts to broaden and strengthen this program by increasing benefits to keep pace with improving standards of living, by raising the wage base upon which benefits depend and by increasing benefits for each year of covered employment."

NOTES

Further evidence that federal aid to medical schools will be high on the agenda of the next Congress is the survey underway by the staff of the House Interstate and Foreign Commerce Committee. More than 50 organizations have been sent letters requesting background facts on financial needs of medical schools and the demand for medical applicants "rather than arguments intended to support or oppose any particular form of federal aid." The information is being gathered as a preliminary to hearings in the next Congress.

Public Health Service announced the availability of 250 traineeship grants for graduate or specialized training of professional public health personnel under the newly enacted Health Amendments (Omnibus) Act. Emphasis is on bringing new and younger people into public health, men and women under 35 years of age. Congress voted \$1 million for the program this year. Another 500 traineeships from a \$2 million appropriation are offered for graduate nurses in administrative, supervisory and teaching positions.

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NORTH CAROLINA

Medical Journal



Vol. 17 No. 11
November, 1956

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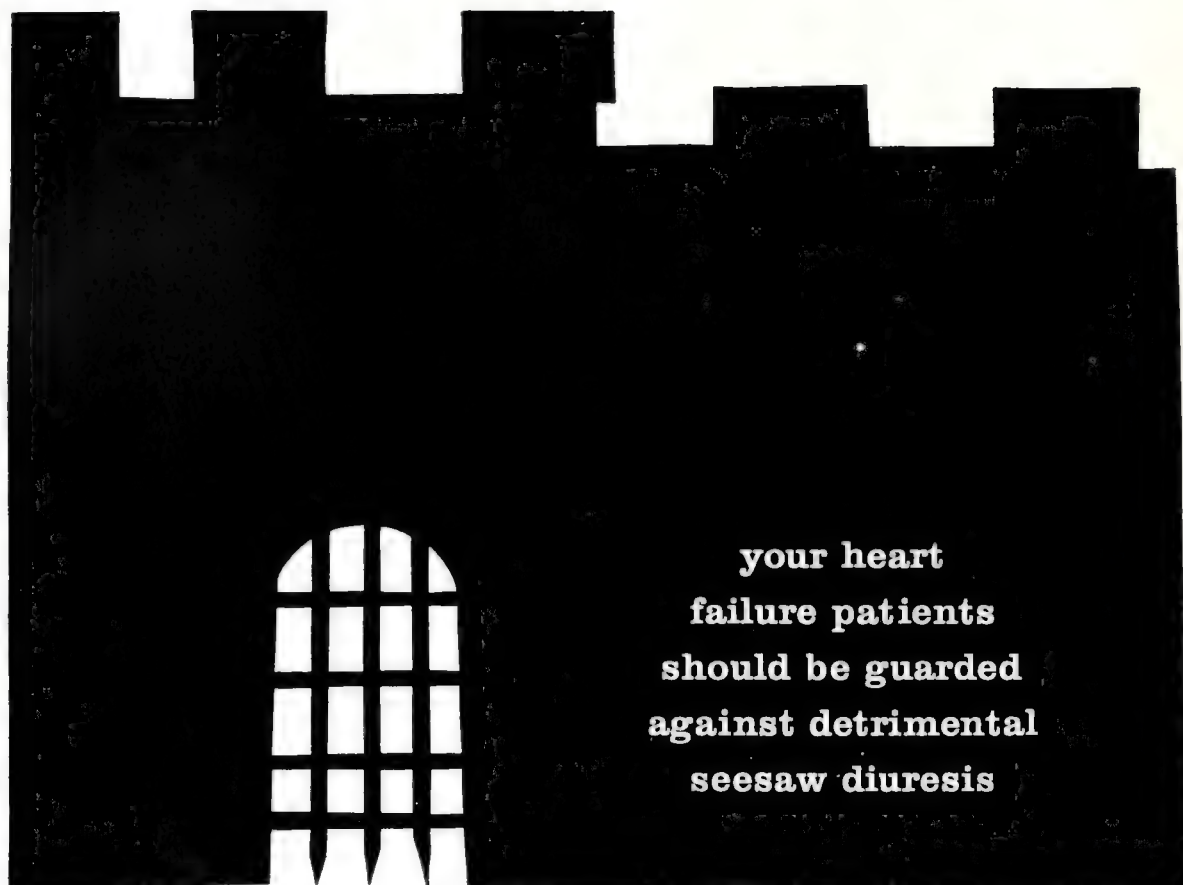
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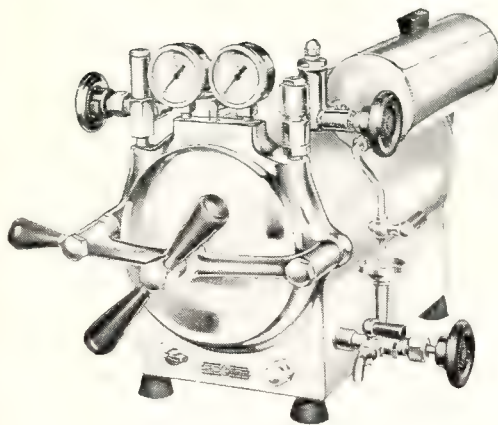
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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 17

NOVEMBER, 1956

NUMBER 11

Obstetric Care and Its Relationship to Surgery

ROBERT A. ROSS, M.D.

CHAPEL HILL

The accomplishment, maintenance, and satisfactory termination of pregnancy is the important biologic function of the female. In our efforts to aid in this process we often use drugs, sometimes endocrine preparations, and occasionally surgery. Each of these can be helpful; all have adverse potentialities.

Effect of Operations on Fertility

In the group of selected and carefully evaluated women who have not become pregnant and whose sterility is due to distorted anatomy, either congenital or acquired, plastic operations are successful in only 5 to 10 per cent of the cases under the most favorable circumstances. However, one pertinent factor which we can do something about is the failure to consider sterility as a possible result, direct or indirect, of female pelvic operations⁽¹⁾. Truly here the scalpel is a "two-edged sword."

A brief listing of the most frequent operative procedures should emphasize this point⁽²⁾. Suspension of the uterus is still frequently performed and often to "assure" pregnancy or the continuance of a pregnancy. There is no valid evidence that conception is facilitated by this procedure, and there is evidence that such complications as hematoma, distortion or injury of the fallopian tubes, and interference with ovarian blood supply can result. In fibromyoma of the uterus, the symptoms, blood loss, and parity of the patient must be considered. The operation of myomectomy can preserve and enhance the possibility of successful pregnancy, and must be remem-

bered. It is known that ovarian cysts may be physiologic, proliferative and embryonal, and that solid tumors, the so-called "sex tumors," and teratomas are likely to be malignant; that the dermoids, endometrioma, and fibroma nonmalignant, and that metastatic tumors of the ovary are rare. In any event, one should take time for careful study, x-ray of the pelvis (in solid tumors), sex steroid studies, when indicated, and certainly for rechecking when doubt exists. Seldom is the life of a patient endangered by close observation for several weeks, and certainly many ovaries have been removed or altered by immediate surgery and failure to interpret the true condition at operation. It has been gratifying to note the increasing tendency to conserve the reproductive organs in the treatment of endometriosis and thereby further the possibility of pregnancy. Reconstructive surgery occasionally offers some hope in the correction of congenital anomalies. The treatment of pelvic infection is now largely limited to antibiotics, sulfonamides and hygienic measures in both male and female. In neglected and repeated attacks, operations might be necessary, but in these cases sterility is definite and the operation should be complete.

The validity of these terse conclusions is shown in the scrupulous, time-consuming study of 500 "sterile" couples by Carter, and others⁽³⁾. All considerations were carefully weighed. The subsequent incidence of pregnancy after the survey was 36.2 per cent. One aspect of the study was the comparison of the incidence of pregnancy in certain anatomic and pathologic conditions where surgery was performed and where it was withheld. The 295 women who had not undergone pelvic surgery previously had a pregnancy incidence of 37.9 per cent;

Read before the Section on Practice of Medicine and Surgery, Medical Society of the State of North Carolina, Pinehurst, North Carolina, May 2, 1956.

From the Department of Obstetrics and Gynecology, University of North Carolina, School of Medicine, Chapel Hill.

the 205 who had undergone previous pelvic surgery, 33.6 per cent. The pregnancy incidence is given for various categories of operations: after surgery on cervix, 27.5 per cent; chronic cervicitis, 37.2 per cent; "suspension" of the uterus, 31.4 per cent; retroversion of uterus present, 39.4 per cent; salpingitis present (no surgery) 13.6 per cent; surgery for "cystic ovary," 28.6 per cent, and "cystic ovary or ovaries present," no surgery, 40.9 per cent. Naturally, this study could not number the uteri removed for hyperplasia of the endometrium, "suspicious" lesions or symptoms unverified by histological study, nor "incidental" pelvic excursions in the course of an abdominal procedure. The picture is all too clear, and is being increasingly emphasized and heeded. Conservatism in the pelvis, as elsewhere in nature, is rewarding.

Evaluating Obstetric Problems

Conditions which might require surgical procedures during pregnancy may be placed in systemic categories and designated as acute, or urgent, and chronic. As a rule, the acute surgical conditions are more "acute," though at times more puzzling, in the pregnant than in the nonpregnant woman, and some chronic conditions are often better treated before pregnancy occurs or after its completion.

When the maternity service at the North Carolina Memorial Hospital began functioning, it was anticipated that this facility would fill an immediate "qualitative" need for the treatment of obstetric emergencies and complications and provide progressive "quantitative" needs. Placed in a village and rural area, staffed adequately, and having immediate and interested consultation facilities, its course and progress have followed this prediction. The program of information and enlightenment regarding maternal care carried on during the past 25 years in this area and in this state has helped in the initiation and progress of this service and has allowed a helpful reciprocity. That there has been a disproportionate number of complicated obstetric patients is shown in our records. The presence of units for the care of psychiatric and acute tubercular patients, a rapidly growing tumor clinic, special medical and surgical clinics—all have contributed a number of unusual obstetric problems. The satisfactory solution of such problems should assure a

healthier mother, or at least one that has not experienced further physical and emotional impairment, and a healthy baby. All efforts and measures are focused toward this achievement.

There is an ever decreasing indication for so-called "therapeutic abortion." The increasing search for new and potent drugs, both chemo- and neuro-therapeutic, has largely removed infections and emotional disturbances as a cause for the interruption of a pregnancy. Wise counselling has allowed pregnancies within the limits of a patient's reserve. Better staff organization and consultation aid in the preservation of pregnancies and give validity to the very rare operation for interruption of a normal pregnancy. As a rule, where "therapeutic abortion" is indicated, sterilization is also indicated. Within the framework of a hospital there should be a group composed of an internist, psychiatrist, and an obstetrician staff member who comment in writing on each patient under consideration. This small group of patients will probably present emotional, cardiovascular, renal or infectious disease problems.

Indications for Surgery During Pregnancy

The most frequent complications of pregnancy itself which fairly consistently require surgery during the first trimester are abortion, ectopic pregnancy and hydatidiform mole. Actually, it is time-saving and generally conservative to hospitalize all patients who have abortions. At the proper time dilatation and evacuation of the uterus should be accomplished. It is rather remarkable how seldom the uterus is entirely emptied spontaneously.

Acute ectopic pregnancy is readily diagnosed, but a slow process sometimes is most difficult. Personally, we do not hesitate to resort to colpotomy. We prefer it to "needling" in doubtful cases.

Hydatidiform mole is a rare condition, occurring once in every 2,000 pregnancies. Repeated attempts at evacuating the uterus are often necessary. Our preference is the vaginal approach, though hysterotomy on occasion might be necessary. Sixteen per cent of molar pregnancies lead to chorioadenoma destruens, which is not truly malignant, though its gross appearance can be quite startling. This complication is frequently mistaken for chorionepithelioma and treated by hysterectomy, and accounts

for most reported "cures" in the latter tumor.

Chorionepithelioma — or better, choriocarcinoma — is a rare tumor (1:160,000 pregnancies) and generally the patient is doomed when the diagnosis is made. Complete hysterectomy and bilateral salpingo-oophorectomy are justified. In this group of tumors, chest roentgenograms and urinary chorionic gonadotrophin assays must be done.

The care of the teeth is important before and during pregnancy and can be accomplished with no ill effects if there are frequent and satisfactory consultations with the dentists. Necessary palliative treatments are helpful for future health, and emergencies can and should be met. The same is true in acute conditions of the nose, throat, eyes and sinuses.

Pregnancy seldom causes thyroid crisis, though a pre-existing lesion can become more severe during the nine months of pregnancy. These emergencies should be treated during pregnancy as they are at other times. Radioactive substances are withheld because of their danger to the fetus.

The heart and lungs may require surgery during pregnancy in the interest of the mother's life. The phenomena of blood volume, heart force, and oxygenation variations at different months of gestation must be considered specifically.

The definite effect of the hormones on breast tissue is even more remarkable during pregnancy. Infection is treated in orthodox fashion. In pregnant women with malignancy, operative procedures should be carried out just as fully as in the nonpregnant woman. We do not believe that the ultimate course of cancer of the breast is altered by removal of the fetus and castration.

Acute abdominal emergencies should have prompt surgical intervention in pregnancy. We do not advocate hysterotomy during the operation for such emergencies.

Urinary tract infections which do not respond to medication might require instrumental manipulation or operation. We do think that ureteral catheterization, especially if repeated, increases the incidence of abortion and premature labor.

Pelvic emergencies can occur during pregnancy and do require operation. Torsion and hemorrhage in a soft tissue tumor

and hemorrhage into pelvic ligaments are the most frequent causes of these fairly rare complications.

Fractures should be given such immediate attention as will assure no great future impairment of the member and allow consideration of definitive measures.

From the opening of Memorial Hospital in January, 1953, through December, 1955, there were 1,439 deliveries, of which 27 were effected by cesarean section. The resident staff performed 13 and the attending staff 14. The private patient admissions are slightly higher than staff. The "low flap" technique was employed in 22 instances, extra-peritoneal 4, and hysterotomy combined with total hysterectomy, bilateral salpingo-oophorectomy and radical pelvic lymphadenectomy once, in a stage II carcinoma of the cervix. Partial salpingectomy was done in 3 instances, one following a third repeat section, and two in multiparous patients with critical cardiovascular renal disease who had difficult labors. The indications for section were stage II carcinoma of the cervix, diabetes with toxemia and hydramnios, prolonged labor in breech presentation, and prolonged labor in face presentation, 1 each; placenta previa, 3; fetal distress in prolonged labor 3; toxemia of pregnancy which had shown maximum benefit without delivery—3; the remaining 10 patients had dystocia, disproportion or both. Four of the procedures were repeat sections. There were no maternal deaths and one neonatal death at six hours, the mother having had placenta previa and the fetus weighing 1,650 Gm.

Malignancy

Malignancy, especially of the female genital organs, presents a special problem. Our treatment is roentgen therapy, operation, or both. Evaluation of each patient is necessary. In the application of radium and x-ray we encounter the problems of definite risk to the fetus and the physical interference of the pregnant uterus. Our primary efforts should be directed toward the patient, and if the pregnancy causes undue delay or interference in the institution and continuation of therapy, it is best to treat it as a definite threat to the mother's life. We are far from dogmatic regarding radical surgery in pelvic malignancy, but do feel that early cancer should prompt the consideration of more complete surgery.

Experience is required in identifying intraepithelial carcinoma of the cervix⁽⁴⁾. In interpreting this lesion from smears, the cytologist inaugurates procedures which may entail serious economic or social problems for the patient. This responsibility and that of detecting the lesion in surveys make us more conscious of the fact that investigators in this field should be exceedingly well trained, and, more important, that these cytologists should work in close cooperation with conservative pathologists.

The pathologic diagnosis of intraepithelial carcinoma of the cervix in pregnant patients presents a problem. We have been interested in the possibility of distinguishing, in smear preparations, the lesion which may regress during the puerperium from the one which will persist as carcinoma *in situ*.

The age, parity, and wishes of the patient should be considered; the patient must give permission for the operation. We have followed a patient who first had a suspicious lesion at age 18, and two months in her first pregnancy, through two pregnancies and who at present has negative findings. We do not recommend surgery for carcinoma *in situ* of the cervix during pregnancy.

Conclusion

The "mechanics" of an operation during pregnancy seldom disturbs the fetus; rather it is the incidental procedures, medication, and especially the anesthesia that are potentially harmful. Pregnancy certainly is not the elective time for any operation, and a surgical emergency usually carries some added risk to mother and fetus, but this by no means offsets the necessity for immediate diagnosis and surgical evaluation. In spite of the remarkable advances in anesthesiology, one cannot disregard the fact that the fetus is normally in an environment of low oxygen concentration and that prolonged reduction of the maternal blood oxygen does carry an immediate threat to the continuation of pregnancy, the viability of the fetus, and the integrity of the placenta. Equally important is the imponderable threat to the normal development and function of the infant's brain.

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Psychoneurosis is as old as the human race in all probability, and it is one form of neurotic personality disorder that occurs in the patient who won't get well. Ever since there have been sick human beings and medicine men to look after them, this group of patients has been, I suspect, quite often difficult to the point of impossibility.

The group of patients who demonstrate this neurotic opposition to recovery is not large. This is fortunate, because if such problems were frequent, the satisfaction and gratifications of practicing medicine would suffer thereby. Most of us, I believe, carry the heavy responsibilities of being physicians aided by the support and satisfactions we gain in seeing our patients improve and recover. The patient who does not make the grade understandably defeats us. When we sense that the patient himself, and not some incurable physical disease, is the source of defeat, we feel resentful and angry. This is true of psychiatrists and general physicians alike, I would add. To keep perspective, the group of patients up for discussion is small; the worry and concern of the physician about them is large.—Hastings, D. W.: *The Patient Who Won't Get Well*, *Minnesota Med.* 39:635 (Oct.) 1956.

Importance of Congenital Anomalies in Medical Practice

WARREN ANDREW, M.D.

WINSTON-SALEM

A congenital anomaly may be defined as an inborn anatomic defect. Such anomalies are by no means uncommon and constitute a rather consistent percentage of medical practice.

In the Orthopedic Service at the Bowman Gray School of Medicine 5 to 7 per cent of the cases are of a congenital nature. These range from great abnormality to relatively small defects. In the Department of Neurosurgery the figure is 11 to 12 per cent.

The recognition of congenital anomalies and of the large role which they play in medical practice has become so prominent that we now have special insurance policies designed to protect parents against their occurrence and the consequent need for medical treatment and care.

Incidence

With regard to the incidence, in a survey of 30,000 consecutive autopsies recorded by Courville⁽¹⁾, 169 gross congenital lesions were found among 146 individuals. A break-down of these anomalies shows 59 cases of congenital hydrocephalus, 41 of spina bifida, 17 of cranium bifidum, 4 of cerebellar agenesis, 4 of malformation of the cerebral cortex, and a number of other less frequent anomalies. It must be emphasized that multiple congenital defects fairly often are found in a single individual. Defects of the nervous system may be associated with orthopedic defects, particularly such anomalies as clubfeet and congenital dislocation of the hip.

Nature and Classification of Congenital Anomalies

It may be surprising to learn that in 1832 a three-volume work on teratology was published by Isidore Geoffroy St.-Hilaire⁽²⁾. In this treatise St.-Hilaire divides the history of the study of "Monsters," the early designation for individuals with gross malformation, into three periods: (1) the

fabulous period prior to the Eighteenth Century, in which fancy and speculation played a predominant part in the interpretation of these conditions; (2) the *positive* period, the first half of the Eighteenth Century, in which some effort was made to study the structure of the malformations themselves; and (3) the *scientific* period, from the middle of the Eighteenth Century through the first quarter of the nineteenth, during which an attempt to reproduce these anomalies experimentally was begun. Detailed pictures are shown of the anatomic structure of anencephalic and other types of abnormal fetuses.

St.-Hilaire believed that many of these monsters were produced by injuries such as blows to the abdomen of the pregnant mother. At this early time also monsters had been produced from hens' eggs by varying the temperature during incubation.

A thorough understanding of the formation of congenital anomalies depends upon an understanding of embryonic development. Thus the fact that in anomalies of the nervous system the dorsal surface of the body wall frequently fails to close over, allowing the meninges and even the nervous tissue to protrude, is a phenomenon dependent upon the original manner of formation of the entire central nervous system by the infolding or invagination of a plate from the surface ectoderm.

Thus, too, the many possible abnormalities in the cardiovascular system depend upon the fact that this system undergoes a series of striking changes. Here, for instance, we must remember that at one stage of embryonic development the primitive aortic arches, arches which pass actually through the original gill masses of the early vertebrate, are found. In postnatal existence only the fourth of these arches on the left side, the great "aortic arch," remains. Also, in the embryo there are orifices between the chambers of the heart—for instance, between the right and left ventricle and between the right and left atria. When for some reason these fail to close, we have a cardiac anomaly. Between the pulmonary trunk and the aorta is a passageway known

Read before the Section on Practice of Medicine and Surgery, Medical Society of the State of North Carolina, Pinehurst, May 2, 1956.

From the Department of Anatomy, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem.

as the ductus arteriosus, which should close at the time of birth and lead to the formation of a fibrous connection, the ligamentum arteriosum; but if this passageway should remain, we have the condition known as patent ductus arteriosus.

Thus congenital anomalies may be due to any type of arrest or deviation from the normal developmental pattern. They need not, however, represent a stage in the phylogenetic development of any system, for many of the events of embryonic development are not related to phylogenesis. For example, the coils of the small intestine, and even of the large intestine, protrude into the umbilical cord at about the seventh week of embryonic development, and at about ten weeks retreat again to the abdominal cavity. This is not a part of recapitulation, but rather is due to a developmental phase in which the abdominal cavity is not large enough to hold all the coils of the intestine. Should some of these coils remain out in the umbilical cord, we have at birth a congenital condition known as "umbilical hernia."

Anomalies and normal variations

Perhaps a few words should be said concerning the relationship between congenital anomalies and what we may call "normal variations" in structure. There is a distinction to be made here which is probably more than one of degree. An anomaly is a rather gross departure from the normal pattern which generally has an effect upon the function of the part. On the other hand a variation in the human species, as in many other species, is something which occurs in a varying, often fairly high, percentage of individuals and which is a rather inconspicuous difference from the most frequently occurring type of pattern.

Each year in the dissecting laboratory we ask the students to list the variations which they find in the various parts of the cadaver. In this listing we often find, for instance, that among 14 bodies there may be as many as three biceps muscles which actually have three heads each. We find also that in the origin of the obturator artery as high as 30 per cent may come off from the inferior epigastric artery rather than from the internal iliac artery. There are many variations, and the pattern of any one body is somewhat different from that of all others in the laboratory. These

variations, then, are not to be considered as congenital anomalies. In general, they have little relation to medical practice except in cases where the location of the part is different from that which the surgeon might anticipate.

Treatment and Prognosis

Spina bifida and cranium bifidum

Of much interest in relation to the prognosis of various congenital anomalies of the nervous system is a report by Ingraham and Swan⁽³⁾ of Harvard Medical School and the Children's Hospital in Boston concerning 546 cases of spina bifida and cranium bifidum. Of 462 cases of spina bifida studied, the status of 401 patients is known and their follow-up is considered adequate. Of these, 234 (58 per cent) are alive. The remainder have died of a variety of causes. Operations were performed on 188 of the living patients and 20 more awaited operation at the time of writing. The immediate operative mortality was 12 per cent. Of the patients who survived, 60 are considered normal and 61 are suffering from a mild neurologic disability—that is, a total of 121 are considered capable of leading normal lives. Therefore about 30 per cent of the patients with spina bifida, according to this survey, may look forward to a life unhampered by any significant incapacity. Such results warrant a re-examination of the frequently adopted extremely pessimistic outlook on spina bifida.

Spina bifida may be defined as a congenital cleft of the vertebral column with meningeal protrusion. Ingraham and Swan⁽³⁾ report also on 84 cases of encephalocele, which may also be called cranium bifidum. Of these, 59 had an adequate follow-up. Fifty-two underwent operation, 17 of which, or 33 per cent subsequently died. Of the 59 patients with adequate follow-up, 3.4 per cent are well and apparently entirely normal. For example, when last heard from one was playing football in high school. The authors say that when one considers a photograph of this boy as an infant, with a sac almost as large as his head protruding from the occipital region, the result becomes very impressive. They conclude, therefore, that about one third of the patients with cranium bifidum also can, with the aid of operative therapy, look forward to a normal existence.

The details of surgical treatment need

not concern us here, but many individual factors are of prognostic significance. For instance, if a protrusion consists only of dura containing fluid attached by a pedicle, the size is of slight importance. If, however, the sac contains nervous tissue or if the ventricular system extends into the sac, the prognosis is very poor. Another point to make here is that associated anomalies of the brain are found occasionally even with apparently hopeful lesions in the various sites, so that prognosis in any individual case must be guarded.

Hydrocephalus

Another congenital condition — hydrocephalus — is frequently associated with spina bifida, and especially with myelomeningoceles. Hydrocephalus appears also to be related frequently to the presence of the Arnold-Chiari malformation, where abnormalities of the hind-brain result in an obliteration of the surface subarachnoid pathways around the upper cervical cord and the brain stem. Hydrocephalus also is often found with encephalomeningoceles in the suboccipital region, causing obstruction to circulation of the spinal fluid. In such cases the cisterna magna or the basilar cisternae are often obliterated at the incisura of the tentorium. There is some question as to whether the stenosis of the aqueduct of Sylvius—also a cause of hydrocephalus—is on a congenital basis or an inflammatory one. Russell⁽⁴⁾ believes that some cases at least are congenital.

In recent years a number of radical surgical procedures for the treatment of hydrocephalus have been adopted. The object of these treatments has been in each case to secure adequate drainage of the spinal fluid. These include ventriculocisternostomy, third ventriculostomy, choroid plexectomy, arachnoidureterostomy, ventriculo-urethroostomy, and ventriculoperitoneostomy.

The use of these radical surgical procedures in modern times has been very rewarding and appears to be justified until a better method becomes available.

Other anomalies

Other types of congenital anomalies in the cranial cavity include arterial aneurysms of the Circle of Willis (which are uncommon), arteriovenous malformations, and the persistence of large emissary veins between the intracranial sinuses and the veins of the scalp.

The Causes of Congenital Anomalies

Consideration of the probable causes of congenital anomalies has a great bearing on their prevention—a subject of great importance for mankind.

The points of dispute here are between those who would assign a primarily hereditary factor to the congenital anomalies and those who would stress the environmental factors influencing embryonic development.

There seems little doubt that the predisposing causes are essentially genetic. A number of types of congenital anomaly such as spina bifida, anencephaly, and hydrocephalus show a tendency to recur in a given family (Malpas⁽⁵⁾), thus suggesting a possible genetic defect.

The actual or exciting causes at work, however, seem to be a variety of conditions which may occur during development. Among these possibilities are imperfect or feeble ova, imperfect implantation in the endometrium, diseases or intoxications of the pregnant woman, febrile states, endocrine disturbances, disturbances in circulation of the fetus, and mechanical injury.

Developmental factors

In the matter of *maternal infection* as a cause of congenital malformations, Gregg⁽⁶⁾, in 1942, made a number of observations regarding the disease known as rubella or German measles. It has been shown by careful studies that rubella during the first third of pregnancy is often followed by multiple malformations of the fetus. These include congenital cataract, deaf-mutism, cardiac malformations, microcephaly, mental deficiency and convulsive states. The probability of an adverse effect on the fetus is so large that some physicians recommend therapeutic abortion if rubella occurs during the first six weeks of pregnancy.

Congenital malformations are found rather frequently in relationship to the disease known as toxoplasmosis. This is a disease produced by a protozoan parasite of the class Sporozoa. Some of the conditions found in infants of mothers who have suffered from this disease during pregnancy are: chorioretinitis (99 per cent), cerebral calcifications (63 per cent), psychomotor retardation (56 per cent), hydrocephalus or microcephalus (50 per cent) and convulsive episodes (50 per cent).

In regard to bacterial diseases, there is no convincing evidence that congenital malformations result from syphilis, tuberculosis or similar infections in the pregnant mother. Congenital syphilis, for example, is a disease of the fetus.

Irradiation can not only cause changes in the chromosomes and genes, but also direct damage to the developing embryo. There are critical periods in development during which irradiation will produce a very high incidence of abnormalities of specific types, even with dosages as low as 25 r. In mice the most critical period is at a time which would correspond to the second to sixth week of gestation in man. It must be emphasized that human pregnancy frequently is not suspected at this early a stage.

Murphy⁽⁷⁾, in 1947, reported a study of 106 women who received therapeutic amounts of radium or of roentgen irradiation during pregnancy. Of these 106, 75 gave birth to abnormal infants. The types of conditions found included microcephalic idiots, spina bifida, bilateral clubfoot, defects of cranial ossification, deformities of the extremities, blindness, and hydrocephalus. This study would indicate the extreme importance of protecting the pelvis during irradiation, and also of avoiding irradiation during early stages of pregnancy, if possible. It would seem wise to restrict irradiation that may involve the pelvic region in women of child-bearing age to the two weeks following the last menstrual period, when possible. The discovery of the existence of pelvic malignancy along with early pregnancy should be considered an indication for therapeutic abortion rather than for therapeutic irradiation during the pregnancy.

In regard to the effects of irradiation of the mother upon the infant, Yamazaki, Wright and Wright⁽⁸⁾, in 1954, found that among 30 mothers who were within 2,000 meters of the hypocenter of the atomic explosion at Nagasaki and who showed major signs of radiation—that is, epilation, lesions of the oropharynx, purpura, or petechiae—there were 7 fetal deaths (23.4 per cent), 6 neonatal and infant deaths (26 per cent), and 4 instances of mental retardation among the 16 surviving children (25 per cent). The over-all morbidity and mortality in this group was 60 per cent, as opposed to 10 per cent in the mothers who were within 2,000 meters of the hypocen-

ter but who did not have major signs of irradiation, and to only 6 per cent in a control group.

The mean height and head circumference of children born to mothers with the major signs were significantly smaller than that of children born to mothers in the control group.

While it is difficult to evaluate the effect of the irradiation as such, since other factors such as trauma, burns, and infection in the mother may have had a deleterious effect on the fetus, the evidence strongly suggests that irradiation either directly to the fetus or indirectly as a result of the effect on the maternal tissues was of considerable importance in the outcome of these pregnancies.

Under conditions of experimentally *reduced oxygen tension* Ingalls, Curley and Prindle⁽⁹⁾, in 1952, found in mice malformations which included interventricular septal defects, anencephaly, hemivertebrae, fused ribs, cryptorchism, and cleft-palate. Recently Ingalls⁽¹⁰⁾ (1956) has again emphasized the readiness with which such malformations can be produced. In support of these findings there is evidence that anomalies are more frequent at high altitude in Peru than at lower altitudes. About 80 per cent of the patients treated for patent ductus arteriosus at one hospital were found to be from elevations of 10,000 feet or over.

Among *chemical agents* which have been shown to bring about congenital malformations are trypan blue, nitrogen mustard, hormones, and cortisone. These, however, are chiefly a matter of experimental effects on laboratory animals. It seems doubtful that such chemicals would be used in sufficient quantities therapeutically in man to bring about congenital malformations. It has been shown, however, that fathers employed in hazardous lead trades have more children with congenital heart disease than the average.

While experiments on animals with *dietary deficiencies* have shown formation of congenital anomalies, it is doubtful just how much effect such deficiency has in man.

It is possible that *mechanical factors*, such as embryonic membranes producing pressure on the fetus, have been much over-emphasized in the older literature. It is felt at present that they are of little or no clinical importance.

Genetic factors

In regard to genetic factors, we know from work with animals that some very definite types of congenital malformations are hereditary. A classic example is reported by Landauer⁽¹¹⁾ and David⁽¹²⁾ on the "creeper fowl." This condition is analogous in many ways to chondrodystrophy in man.

In man an example of a highly specific malformation due to failure of an organizer in an embryo is furnished by polycystic kidney disease, in which there is failure of union of the proximal and distal tubules of the kidney. This is on a genetic basis.

We have mentioned the known hereditary nature of anencephaly, spina bifida, and some other congenital anomalies.

Advice to Families

The subject of advice to families concerning congenital malformations is an important one. It must be admitted that a given malformation may be inherited in one family and due to an environmental agent in another family. Microcephaly may be due to a recessive gene, to x-ray, to rubella, and possibly to anoxia. A study of the family history of both parents and of the obstetric history of the mother is indicated. If environmental agents can be indicated, one is justified in stating that the couple would have no increased risk of malformation of the child in future pregnancies; if not, the prediction must be guarded.

The frequency of congenital anomalies, counting stillbirths as well as live births, is probably about 2.5 per cent. We heard recently of a family in which three anencephalic monsters were born in sequence to one mother. There would be only one chance out of 64 of this happening, even if the anencephalic character were considered to be a recessive gene.

Where specific types of malformations can be identified as hereditary, fairly reliable statistics concerning risk are available. These are based on a knowledge of genetics. In cases where it is impossible to obtain specific data, one may fall back on general statistics such as those provided by Murphy⁽⁹⁾, in 1947, which were based on all gross malformations observed in the Philadelphia population. Murphy showed that these malformations were identical in the second affected child in about half of the

families. Also, the risk of repetition increased with the increasing age of the mother. To state the risk in somewhat different terms, if a mother bears one malformed child, her risk of malformation in later pregnancies is 25 times that of the general population. Certainly the discussion of these problems with parents is important. A definition and evaluation of the risk involved will do much to dispel unwarranted fears and feelings of guilt on the part of the parents. The psychologic characteristics of both parents should be taken into account in relation to the probable occurrence of the birth of a malformed child. For example, the birth of a second malformed child might constitute a serious trauma to the psyche of one or both of the parents. The physicians might justifiably suggest that further pregnancies be avoided. Of course, the intensity of the wish for a child is another factor. As in many other cases in medicine, all pertinent data should be made available to the "patients" concerned, but the final decision should be left to them after mature reflection and consultation with the physician.

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Thyroid Problems in Children

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CHAPEL HILL

For the past 75 years disorders of the thyroid gland have been classified and interpreted on the basis of pathologic anatomy. Until recently medical therapy has been based on the empirical use of iodides and thyroid extract in a wide variety of clinical conditions. The practitioner has been understandably confused by the apparently paradoxical use of iodine to treat patients not only with hypothyroidism, but also those with hyperthyroidism, and some with goiter who are euthyroid. We are now in a period in which the emphasis is rightly shifting to a study of thyroid function. By the employment of newer techniques of investigation, largely made possible by the availability of I^{131} , thyroid disorders are being reclassified in terms of specific disturbances of function, and the use of therapeutic agents is being placed on a rational basis.

So far in this new era no miracle drugs have been forthcoming and no substitute has been found for clinical acumen on the part of the physician. The astute physician today, however, is in a much better position to make a precise diagnosis and to administer appropriate therapy than was the case even 10 years ago.

Thyroid-Pituitary Relationship

Although it has long been known that the thyroid gland is under the control of the anterior pituitary, the mechanisms and quantitative relationships of thyroid function are now becoming clearer. The pituitary, by releasing thyroid stimulating hormone (T.S.H.), induces the thyroid gland to perform three functions — namely, to concentrate inorganic iodides from the circulating blood, to manufacture thyroid hormone from 1-tyrosine and iodide (which has been oxidized to its elemental form), and to release the hormone into the blood stream (fig. 1.) One of these functions may be disturbed without necessarily disturbing the steps preceding it. In normal individ-

uals the pituitary secretes just enough trophic hormone so that the circulating thyroid hormone is kept nearly constant. This homeostatic mechanism is remarkably sensitive, and the protein-bound iodine (P.B.I.), which is usually a good measure of circulating thyroid hormone, shows very little fluctuation from day to day in a given individual. It is also difficult to change the "thermostat." Greer, Perlmutter, and others have shown that if thyroid extract is administered in moderate dosage to a normal individual, the output of thyroid hormone is curbed to the extent that exogenous thyroid is administered⁽¹⁾. This effect is mediated through the pituitary gland, and the iodine uptake falls while the P.B.I. remains nearly constant. There is evidence that pituitary function is also suppressed by iodides⁽²⁾. Excessive iodine medication, however, alters thyroid function in other ways as well. Not until about 3 grains of desiccated thyroid is given and the patient's own gland is fully suppressed is there a net increase in circulating thyroid hormone. These observations find direct clinical application when the physician is confronted with the obese adolescent or the child who is retarded in either growth or mental development, but who has a normal P.B.I. and who is not truly hypothyroid. In these individuals the only effect of giving thyroid medication will be depression

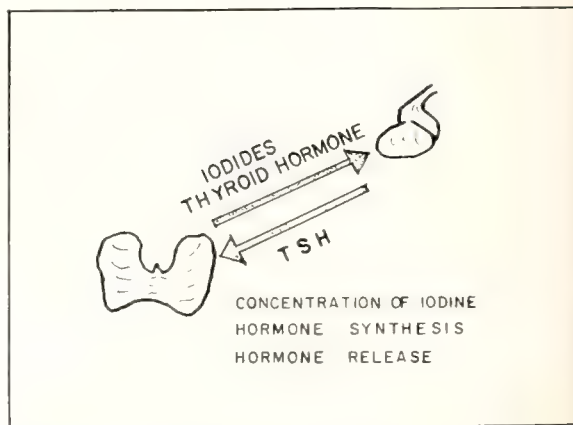


Fig. 1. The reciprocal relationship between thyroid and pituitary secretions regulates thyroid homeostasis.

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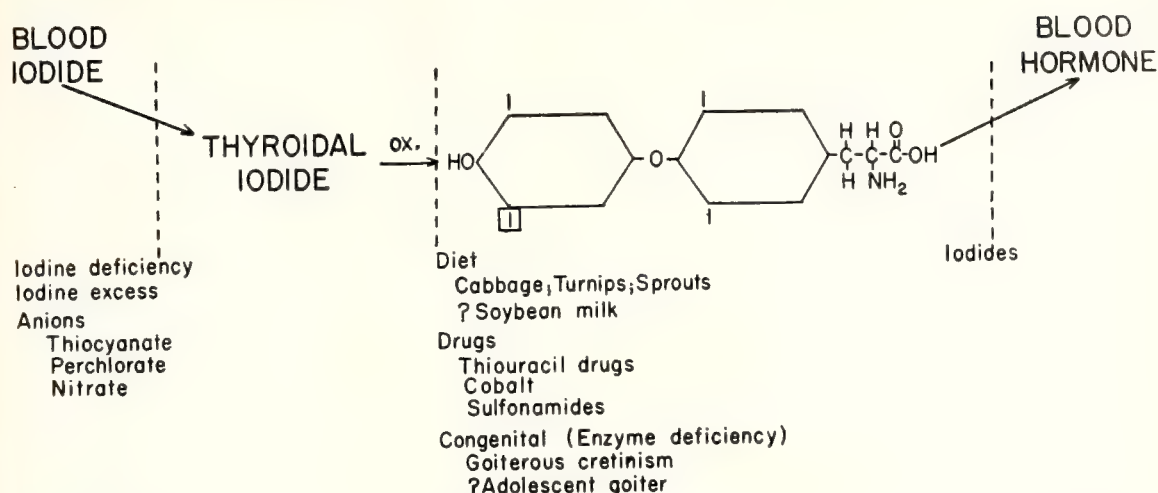


Fig. 2. Simplified scheme of thyroid hormone synthesis. Production of hormone can be blocked at several sites either by a congenital defect in the enzyme mechanism or by environmental factors.

of endogenous thyroid function. Eventually iatrogenic hypothyroidism may ensue when therapy is discontinued.

Thyroid Synthesis

After the trapping of iodine from the blood under the influence of the pituitary gland, a series of chemical reactions finally leads to the release of L-thyroxine, the major thyroid hormone (fig. 2). This orderly process can be disrupted at any point not only by naturally acquired disease, but also by substances which are taken into the body. Whenever the thyroid manufactures insufficient hormone to meet the physiologic needs of the body, it is stimulated by the pituitary gland to enlarge. Either an increased demand or a deficient production of thyroid hormone can create this disturbance. Since the thyroid has a considerable reserve capacity, increased demand alone apparently rarely causes hypertrophy. Some impairment in function is probably also necessary. Usually the resulting hypertrophy compensates for the demand and the patient remains in euthyroid status. Occasionally there is a more severe block in the production of hormone, and hypothyroidism ensues. Thus, in most instances, thyroid enlargement represents a compensatory phenomenon. Histologically the gland may present a varied picture depending on the duration of the metabolic derangement. There is increasing opinion, for example, that the struma lymphomatosa of Hashimoto is the manifestation of a metabolic derangement rather than of

some unidentified infection. Talbot has found this histologic picture in about one third of his patients with simple adolescent goiter⁽³⁾.

Goiterogenic Agents

Iodine

Not many years ago goiters were common in certain parts of this country as a result of iodine deficiency. Although the introduction of iodized salt has all but obliterated this condition in the United States, studies in endemic goiter regions in South America indicate that the uptake of radioiodine is greater than in non-endemic areas whether or not a goiter is present⁽⁴⁾. In other words, whereas you and I need to concentrate only 50 per cent of our ingested iodine, if we lived in an iodine-poor area we would have adapted ourselves by concentrating 90 per cent or more of ingested iodine. Because of these adaptive mechanisms, deficiency of iodine sufficient to cause cretinism does not occur unless several generations have lived in areas almost totally deprived of iodine. The amount of iodine necessary to prevent a compensatory goiter due to iodine deficiency is very small. Therefore, iodine deficiency is probably a minor cause of goiter in this state today.

If goiters of this nature do occur, even 1 minim of Lugol's solution daily would exceed the dose required to alleviate the deficiency, although a long-standing colloid due to the iodine deficiency would not disappear even on large dosages.

What is becoming a more frequent prob-

lem is the goiter which is aggravated by excessive administration of iodide or the goiter induced in a normal individual when iodides are given for a variety of other reasons such as asthma. It is not completely clear how iodine acts as a goiterogen, but there is evidence that it not only interferes with the synthesis of the hormone⁽⁵⁾, but also inhibits release of the hormone into the blood stream⁽⁶⁾. In occasional cases of prolonged and excessive iodine ingestion, frank myxedema has been reported⁽⁷⁾. In our experience the goiter encountered today does not disappear when iodine is administered; it simply becomes firm.

Other goiterogens

Other goiterogenic substances act to block the synthesis of thyroid hormone. Inorganic anions such as perchlorate, thiocyanate, and nitrates are concentrated in the thyroid in the same manner as iodide, and act by displacing iodides⁽⁸⁾. Perchlorate has been used successfully to treat thyrotoxicosis by taking advantage of this property⁽⁹⁾. It has little toxicity but is not as efficient as the thiouracil derivatives, which act by blocking the enzymatic processes that incorporate iodine into the organic molecule. Other drugs such as cobalt, certain sulfonamides, and p-aminosalicylic acid also function in a manner similar to the thiouracil derivatives. Certain foods of the Brassica family also contain goiterogens, and are thought to be responsible for the prevalence of goiters in Europe during the war. Recently it has been reported that a number of infants on soy milk preparations have developed goiters⁽¹⁰⁾.

The mounting list of newly recognized environmental goiterogens probably does not account for the majority of goiters encountered in clinical practice. Usually the children with goiters whom we see have had an adequate intake of iodine and have not been exposed to known goiterogens. Frequently there is a history of goiters in the parents, aunts, or uncles. Certain lines of evidence suggest that such patients may have an inborn error of metabolism which prevents complete iodination of the hormone. Usually the deficit is slight and compensatory hypertrophy occurs only during periods of increased need such as adolescence and pregnancy. Rarely, if ever, do such goiters become toxic. The natural his-

Table 1 Classification of Cretinism I ¹³¹ and P.B.I. in Cretinism*		
Type of cretinism	I ¹³¹	P.B.I.
I. Endemic (Iodine deficiency)	Normal or high	Low†
II. Sporadic		
A. Embryonic defect		
1. Total	0	Low
2. Partial (Gland may be ectopic)	2-10%	Low
B. Defect in synthesis ("Goiterous cretins")	Normal or high	Low†
	†Rare exceptions	

*"Goiterous" cretins do not develop a goiter for months or years and the only distinguishing feature is a normal or high I¹³¹ uptake.

tory is for them to subside without treatment. Children with goiters should, however, be observed for the development of hypothyroidism. If the goiter is large and a cosmetic liability, it may be made to disappear rapidly by the administration of full doses of thyroid extract, perhaps 2 to 3 grains daily. This inhibits the excessive pituitary stimulation and puts the patient's thyroid gland at rest. It should be emphasized that most patients require no therapy at all.

Goiterous Cretinism

Children who have a more severe congenital block in hormone synthesis are hypothyroid from birth and are called goiterous cretins. Some have no ability whatever to iodinate tyrosine; others may be able to manufacture only mono- and di-iodotyrosine, which are physiologically inactive⁽¹¹⁾. The goiter is not usually present at birth, but appears either months or years later, owing to continued stimulation by T.S.H. In these children, if thyroid is given early enough and in adequate dosage, the goiter may never form. It is of interest that both parents of one such child with goiterous cretinism had simple goiters without hypothyroidism in adolescence.

Differentiation of goiterous cretins from other types of cretinism

The differentiation of young cretins with an inborn error in synthesis from those due to hypoplasia of the gland is based on the uptake of I¹³¹ (table 1). It is high in the goiterous cretin and low or zero in the child with an embryonic defect⁽¹²⁾. It is important to make the distinction, since the former condition is familial and subsequent infants must be closely observed from the time of birth for signs of hypothyroidism.

Table 2

Factors Giving Rise to Congenital Goiters

Maternal factors

1. Iodine ingestion
2. Thiouracil drugs
3. Other goiterogens
4. Unknown

Fetal factors

Goiterous cretinism

(Goiter rare at birth)

The majority of such infants will regain normal thyroid function and goiters will disappear spontaneously. Thyroid extract is often dramatically beneficial but iodides are contraindicated.

Congenital Goiters

The pediatrician occasionally is confronted by a newborn with a goiter. The infant may or may not exhibit signs of hypothyroidism. In most instances these cases can be traced to the ingestion of goiterogens by the mother during pregnancy⁽¹³⁾ (table 2). The use of iodides by the mother for asthma is a frequent cause. Propylthiouracil or methimazole is frequently given to pregnant women with thyrotoxicosis. This medication is safe for the baby providing the attending internist or obstetrician recognizes that the basal metabolic rate and P.B.I. determinations are normally higher in the last trimester of pregnancy and accordingly does not give the mother excessive dosages. If the dosage is too great, however, the infant will be born with a goiter and perhaps hypothyroidism.

In most instances a congenital goiter will spontaneously disappear and the child will regain his normal thyroid function. If 2 to 3 grains of thyroid extract is given daily, the goiter will frequently regress dramatically. Under no circumstances should iodides be given, as a soft gland will become firm and compression of the trachea may result. If respiratory obstruction is present, the child should be placed with his neck in hyperextension. Tracheotomy is contraindicated, as it cannot relieve the obstruction and has usually led to death. A simple partial thyroidectomy is indicated if there is insufficient time for a trial of thyroid extract.

Thyrotoxicosis and Thyroid Neoplasm

We have discussed simple thyroid enlargement as a disorder of function rather than as a series of pathologic entities. A similar approach is applicable to thyrotoxicosis and thyroid neoplasms. Medical management alone may now be used as

definitive therapy in many children with juvenile thyrotoxicosis. Propylthiouracil is administered for at least two years to cut down the synthesis of thyroid hormone. If the gland remains enlarged, we recommend the supplemental use of thyroid extract to block the stimulating effect of the pituitary. On this regimen, more than 50 per cent of the patients will remain in a permanent remission⁽¹⁴⁾. The application of newer knowledge and improved techniques should increase this percentage.

At the present time the only safe therapy for thyroid cancer is surgery. Children have a higher incidence of malignancy in nodular goiters than do adults, and surgical biopsy should always be carried out when a nodule is felt. Nevertheless, it is our firm belief that even cancer of the thyroid will eventually be found to be a disturbance of function and therapy will be placed on a rational basis.

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Pulmonocardiac Failure Due To Thoracic Deformities

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CHAPEL HILL

Hippocrates supplied the text for this paper 25 centuries ago with his forty-sixth aphorism, which states that "such persons as become hump-backed from asthma or cough before puberty, die."⁽¹⁾ Despite the facts that these unfortunate persons with chest deformities are seen fairly frequently in medical practice, that many die of pulmonocardiac failure at an average age of 30, that the clinical picture is often bizarre, and that some aspects of the pathologic physiology remain an enigma, the problem has been given scant attention in the English literature. The best review of the subject is that of Chapman, written in 1939⁽²⁾. A few clinical studies utilizing modern techniques for the study of pulmonary function and cardiac catheterization have been made, but more are needed to clarify the problem.

Incidence and Etiology of Thoracic Deformities

The incidence of chest deformities is undoubtedly high, but no accurate figures are available. The number of patients dying of pulmonocardiac failure as a result of these deformities is also unknown, although 126 had been reported in the literature at the time of Chapman's study.

In individual patients, the etiology of the chest deformity is often obscure (idiopathic), but of the known causes poliomyelitis, congenital or hereditary defects, rickets, and tuberculosis rank first, in that order. It seems probable that with present methods used in the treatment of the infectious diseases, resultant skeletal deformities will occur less often.

Thoracic deformities are classified as

lordosis, kyphosis, kyphoscoliosis, pectum excavatum, and pectum carinatum. Only the more severe grades of these deformities produce harmful intrathoracic changes. It is an interesting and unexplained fact that of the scoliotic diseases, the right dorsal-left lumbar type curve is 10 times more frequent than the left dorsal-right lumbar type. The former produces a bulging of the right wall of the chest, with compensatory compression of the left wall.

Symptoms and Signs

The most common symptoms in persons having thoracic deformities associated with pulmonocardiac failure are dyspnea, palpitation, cough, epistaxis, and sudden syncope attacks. Many have bizarre complaints and are classed as psychoneurotics. Two patients with this syndrome who were recently observed personally complained of severe headaches which did not fall into any of the accepted categories. Patients so afflicted are usually shy and frail. The typical picture is one of onset of spinal deformity in childhood, progression through adolescence and early adulthood, and the appearance of pulmonocardiac symptoms during the third decade, followed shortly by death. Habitual dyspnea is present. Because of the deformity and rigidity of the thorax, the ribs are inefficiently used, and breathing is performed with effort. The slumping into the pelvis, the high and poorly movable diaphragm, and the weak abdominal muscles result in abdominal and inefficient respiration. Many patients find that they are most comfortable in a recumbent position, with the spine hyperextended.

The outstanding signs are retarded physical development (dwarfish appearance), emphysema on the convex side of the scoliosis, compression on the concave side, dyspnea, persistent tachycardia, and, in the

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later stages, cyanosis, accentuated pulmonary second heart sound, and edema. Clubbing of the fingers appears to be universally absent. Enlargement of the heart is obviously difficult to detect by physical examination and x-ray study because of distortion, but right ventricular hypertrophy and dilatation have been common findings at autopsy. An increased susceptibility to pulmonary infection may precipitate failure.

Physiologic Changes

The striking physiologic disturbances producing the clinical picture in this syndrome are often inadequately explained by autopsy. The most consistent cardiac findings are dilatation and hypertrophy of the right ventricle, a finding present in 45 of 69 reported postmortem studies. Rarely are pathologic changes present in the pulmonary arteries or veins. Writers disagree as to the changes in the lung. Compression has been found in some areas and compensatory emphysema in others. It is probable that abnormalities in the lungs depend to some extent on whether the chest deformity develops during or following the period of growth. In the former instance, the lungs cannot develop to their full size in the cramped thorax, whereas in the latter pulmonary emphysema is the most likely change. There is agreement that these persons are prone to pulmonary infection. In 276 cases studied by Bachmann⁽³⁾, pneumonia was present in 60 per cent, emphysema in 46 per cent, bronchitis in 46 per cent, atelectasis in 31.2 per cent, and bronchiectasis in 6.1 per cent.

The evidence is convincing that cardiac compression and kinking of the vessels is rarely responsible for disturbance of function. On the contrary, the primary effect is on lung tissue with consequent embarrassment of the heart and death due to combined pulmonocardiac failure. Evidence for this observation has been supplied by Chapman and Schaub⁽⁴⁾, but the exact mechanism remains unclear.

Chapman, in a study of 12 patients, found the striking feature to be the absolute and relative reduction in vital capacity, usually amounting to as much as 50 per cent. Furthermore, the vital capacity constituted from 35 to 53 per cent of the total lung volume, whereas in normal individuals it ranges from 57 to 69 per cent of

the total. The ratio of residual air to vital capacity was 1.3 in the patients and 0.6 in the normal subjects. He also found that these patients extract less oxygen from a given volume of inspired air than do normal people.

On the convex side of the scoliosis the lung was distended, but on the concave side compressed and often atelectatic. Steinmann⁽⁵⁾, using differential bronchspirometry, found disturbance of lung function more marked on the latter side than on the former.

Schaub recently has supplied data from cardiac catheterization which formerly had been surmised but not proved. Unfortunately, however, he did not record pulmonary capillary pressures. He divided his patients (16 had lung function studies, and 6 had cardiac catheterization) into three groups, with the following results:

1. *Younger patients with less marked deformity.* In these, lung function and respiratory reserve were essentially normal even after exercise.
2. *Patients with a marked decrease in lung volume and respiratory reserve.* On effort, the maximum breathing capacity was reduced. At rest, however, arterial oxygen saturation and carbon dioxide tension, and pressures in the right side of the heart were normal. To maintain the normal values for blood gases, alveolar hyperventilation and a corresponding decrease of the physiologic dead space develop in these patients.
3. *Patients with respiratory insufficiency at rest, arterial hypoxia and hypercapnea, and increased right ventricular and pulmonary artery pressures.* The alveolar ventilation was decreased, the average alveolar oxygen tension decreased, and the physiologic dead space was relatively greater.

From these data it appears that some patients with severe thoracic deformities reach a point where ventilatory capacity and the respiratory gas exchanges become gravely altered. Pulmonocardiac failure may gradually develop or be precipitated suddenly by pulmonary infection or respiratory depression due to the ill-advised use of narcotics. When the pulmonary reserve becomes low enough, retention of carbon dioxide caused by excessive dead

space-like ventilation and venous admixture can no longer be controlled by hyperventilation. As marked and persistent retention of carbon dioxide calls forth a large increase in the carbon dioxide content, the respiratory center becomes less sensitive to the carbon dioxide stimulus. The main stimulus to respiration is then potentiated by the action of anoxia upon the chemoreceptors of the carotid body. With severe arterial hypoxia, polycythemia develops and the blood volume tends to increase moderately.

Anoxia and retention of carbon dioxide have been shown to produce pulmonary arterial hypertension, presumably by a local and direct effect on the smooth muscle of the smaller pulmonary vessels and not by a mechanism which involves ganglionic action⁽⁶⁾. Under the additive loads of polycythemia, increased blood volume, and high cardiac output, all initiated by anoxia and all promoting further pulmonary hypertension, the hypertrophied and dilated right ventricle begins to fail. When failure has occurred, cardiac output falls.

Treatment

What can be done in the way of treatment for these handicapped persons? The following points merit consideration:

1. Every effort to relieve the deformity should be pursued through adolescence and early adult life. The early use of spinal fusion operations to stabilize the spine, stretching procedures, and breathing exercises are of utmost importance. Improved care of patients with poliomyelitis, particularly the continuance of bed rest until maximum muscle strength is regained, and physiotherapy, should aid in the prevention of severe deformities.
2. The tendency to complain must be accepted with patience, and the physician must realize that there is a basis for the bizarre complaints.
3. Activity should be kept within the patient's tolerance.
4. In the presence of pulmonocardiac failure:
 - a. Bronchiolar obstruction may be relieved and bronchial secretions reduced by the liberal use of atomized bronchodilators.
 - b. Bronchial infection should be vigorously treated, remembering that what

is an insignificant infection in the normal person may be catastrophic in these patients.

- c. The function of the right ventricle may be improved by the use of digitalis.
- d. Hypervolemia may be reduced by phlebotomy and fluid removed later with mercurial diuretics.
- e. Oxygen therapy is also beneficial, but it should be used cautiously since it may eliminate the only potent stimulus to ventilation which is left—namely, anoxia.
- f. The judicious use of a respirator may be of value in advanced cases.
- g. Respiratory depressing narcotics should never be used.

Case Reports

Case 1

The patient was a 62 year old white woman. Kyphoscoliosis, first noted at the age of 8, was progressive, despite attempted correction until the age of 22. The etiology of the deformity was obscure. She presented herself in March, 1950, with complaints of severe nocturnal headache of 10 years' duration, which were relieved by ambulation. More recently, exertional dyspnea, ankle edema, and lack of energy had developed. Examination revealed normal blood pressure and ocular fundi, marked right dorsal-left lumbar scoliosis with kyphosis, unremarkable cardiac findings, except for persistent mild tachycardia, and clear lungs. A hemogram, urinalysis, blood urea nitrogen determination, and electrocardiogram were normal. During the next three months dyspnea increased despite digitalization.

On the morning of July 8, 1950, the patient consulted a physician because of severe dyspnea. Eight milligrams of morphine sulfate was administered, and shortly thereafter she was admitted to a hospital in a comatose state. The pupils were constricted, the respiratory rate was 4 per minute, reflexes were absent, and there were scattered fresh hemorrhages in each ocular fundus, bilateral pulmonary edema, and 2 plus edema of the legs.

Despite intermittent oxygen therapy, respiratory stimulants, aminophylline, and digitalis, the patient died 14 hours later without regaining consciousness. Autopsy failed to reveal an organic lesion in the brain. The heart and great vessels were essentially normal; but unfortunately the report contains no measurement of the tricuspid circumference, which would be an indication of right ventricular dilatation. The left lung weighed 200 Gm., the right weighed 325 Gm., and sections from both revealed considerable fibrosis, congestion, and edema.

Case 2

The patient was a 41 year old white woman. At the age of 3 she had had poliomyelitis, with involvement of the left arm and leg, and at age 6 began to manifest kyphoscoliosis. Despite treatment with hyperextension, body casts, and other measures, it was slowly progressive. She was frail, of a "nervous temperament," and at about the age of 35 noted the gradual onset of exertional dyspnea. On December 29, 1953, she was admitted to North Carolina Memorial Hospital because of severe left occipital headaches, related to recumbency, of five days' duration. The blood pressure was 142 systolic, 100 diastolic, and the pulse was 100. Further examination revealed underdevelopment, severe kyphoscoliosis (right dorsal—left lumbar type), dry rales over both lung bases, a palpable liver (2 cm. below the right costal margin) and bilateral pes cavus. Laboratory studies, including a hemogram, urinalysis, venous pressure, circulation time (Decholin), spinal fluid examination, skull films, and electrocardiogram were normal. On roentgen examination, pulmonary function tests revealed an extreme degree of restrictive pulmonary insufficiency. The presence or absence of true emphysema could not be determined by these studies.

Inspiratory capacity—38 liters

Expiratory reserve volume—11 liters

Vital capacity—57 liters (18.3 per cent of normal.)

Maximal breathing capacity 29.4 liters (50 per cent of normal.)

Despite restriction of activity, digitalization, and other measures, her course progressed to death due to pulmonocardiac failure a few months later.

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The Rhinoplastic Approach To Nasal Surgery

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The perplexing problem of nasal obstruction has consistently offered a challenge to the otolaryngologist. The Kilian submucous resection has too often failed to correct the subjective symptoms of blocked nose. What then is the cause (or causes) of such obstruction? Endocrine, metabolic, allergic and stress factors—all play varying roles.

Anatomically, nasal obstruction may be caused by any structure that decreases the size of the nasal tract sufficiently to produce air hunger in a given individual. Air is drawn into the nose by virtue of the negative pressure created by the expanding thoracic cage. The rate and depth of the respiration plus the smallest lumen of the nasal tract determine the negative pressure created in the nose. It is the rapidity of the fall and the depth of negative pres-

sure, in my opinion, that produce the sensation of nasal obstruction. Then any structure that impinges on the airway sufficiently to produce an increased negative pressure can cause air hunger. Hence any deformity from the anterior to the posterior choana may produce nasal obstruction. Deformities of the columella, ala nasi, alar and upper lateral cartilages, as well as the septum and turbinates, may individually or collectively produce nasal obstruction. Each of these structures should be carefully examined.

Diagnosis

Often the examining physician is prone to grasp a nasal speculum, insert it into the nose and inspect the septum and turbinates, and form an opinion about nasal obstruction. To examine the nose properly, however, he should look first at the entire external nose, noting both the shape and direction of anterior nares, the shape of the nasal pyramid, the columella, the nasal vestibule, and the limen. Second, he should

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watch the nose in quiet and in forced inspiration and expiration. Third, he should observe the action of the upper and lower lateral cartilages and their attached muscles, and their relationship to the nasal septum in the region of the limen. This is the pinchcock, and a slight deformity here may produce symptoms where a large posterior spur may produce more.

We are all familiar with the use of accessory nasal muscles in the asthmatic patient or when a normal individual exercises—that is, the dilation of the ala nasi, the inswinging of the upper lateral cartilages at the limen, and the prevention of complete collapse by the action of the dilator nares and quadratus muscles on the lateral crus of the lower lateral cartilage. I have observed that if a patient uses accessory nasal muscles in quiet respiration in order to breathe, an obstruction is present. Recently I have seen a patient who uses his depressor septi muscles to increase the size of the naris opening in order to increase breathing space. The utilization of these muscles in quiet respiration is not normal, and any patient presenting this sign deserves careful examination. I have found this sign in most tip deformities and feel it is a reliable indication of sufficient nasal obstruction to warrant surgical correction in most cases.

After noting carefully the shape and the action of the external nose, one is ready to inspect the character of the nasal mucosa, the shape of the nasal septum and its relationship to the turbinates and sinus meati. After noting all these structures, one is able to evaluate completely the nose and recommend correction of existing deformities.

Surgical Techniques

For surgical purposes Foman⁽¹⁾ divides the nasal septum into two compartments by an imaginary dorso-ventral line beginning at the caudal attachment of the upper lateral cartilage to the septum ventrally, extending to the maxillary crest dorsally. That part lying above this plane is called the cephalic compartment and all below it the caudal compartment. The caudal compartment contains the potentially weak triangle of the nose. Deviations in the caudal compartment are properly corrected by a rhinoplastic approach. These procedures are not difficult, and should be

done by all otolaryngologists who perform septal surgery.

Deformities involving the caudal compartment are corrected by two basic techniques. One consists of removing obstructing bone and cartilage, then shaping and reinserting these autogenous grafts in such a way as to insure proper support of the nose. The other method leaves in most of the cartilaginous septum after the basic technique of Metzenbaum, but approaches the deflection by a transfixion incision. The deformed cartilage is shaved, cross-hatched, and small portions are resected to allow molding and repositioning of the caudal septal elements to maintain adequate nasal support. Excellent descriptions of these techniques are available in the literature. Each case has many variables; hence the individual deformity must be carefully evaluated and a combination of several techniques incorporated in each case.

Types of Nasal Deformities

I would like to present three groups of nasal deformities: (1) deformities of the nasal tip, with associated caudal septal deformities; (2) combined septal and external nasal deformities; (3) external nasal deformities with correction by cosmetic rhinoplasty.

Nasal tip deformities, with associated caudal septal deformities

Into this group fall those cases that many times derive little or no benefit from the Killian procedure. The otolaryngologist should correct all existing deformities. It takes little more time than that involved in the routine submucous resection, and physiologic and cosmetic improvement is obtained. Anyone failing to correct associated tip deformities will end up with a patient who still complains (and rightly so) of difficulty in breathing through the nose.

Case 1

A 27 year old white man presented a history of difficulty in breathing through the nose for several years. There was no history of trauma. Examination showed the nasal bones to be of normal shape and position. The entire cartilaginous dorsum deviated to the right, with projection of the inferior border of the septum into the right naris. The columella was twisted and pulled to the right. On quiet inspiration the right ala nasi almost completely collapsed. On deep inspiration complete collapse occurred. The nasal septum showed an angle of deflection at the limen on the left, which



Fig. 1 (Case 1)

caused some obstruction. The ethmoid plate and vomer were in good position. The basic deformity consisted of a quadrilateral cartilage that was too long; as it grew it produced the tip deformity. Surgical correction was made through a transfixion incision. The inferior septal deformity was corrected by excision of the excessive cartilage. The quadrilateral cartilage was mobilized by modified Metzenbaum technique. The upper and lower lateral cartilaginous deformities were corrected by mobilization, trimming, and re-positioning of these elements. The nose was thereby shortened, the naris openings equalized, and the columella repositioned.

Case 2

A 19 year old white youth presented the complaint of difficulty in breathing through the nose of several years' duration. There was a history of probable trauma in adolescence. Examination showed the external nose to be normal except for deviation of the tip to the right, with the free septal border projecting into the left naris. Other deformities were an enlarged and irregular spur of the anterior nasal spine, associated deformities of the columella and upper and lower cartilages, and a posterior septal ethmoid deviation. Surgical

correction was performed by removing most of the anterior septal cartilage and reinserting autogenous grafts. A strut was placed in the columella to maintain position and to prevent retraction of the septolabial angle. The upper and lower lateral cartilages were mobilized, trimmed, and molded into proper positions. The columella, anterior septum and naris openings were restored to normal, the pinched lobule was corrected, and the tip was repositioned into the mid-line.

Combined septal and external nasal deformities

When septal and external nasal deformities co-exist they are more easily corrected by a combined internal and external procedure. By this method a better physiologic and cosmetic result is obtained. In most cases the nasal obstruction cannot be completely relieved by septal surgery alone. In this group I do not hesitate to recommend a complete correction; however, in the strictly cosmetic case, I let the patient ask for the correction. Usually it is not the physician's prerogative to tell an individual to change his facial appearance for cosmetic purposes; but when the change improves the physiology, it is justified.

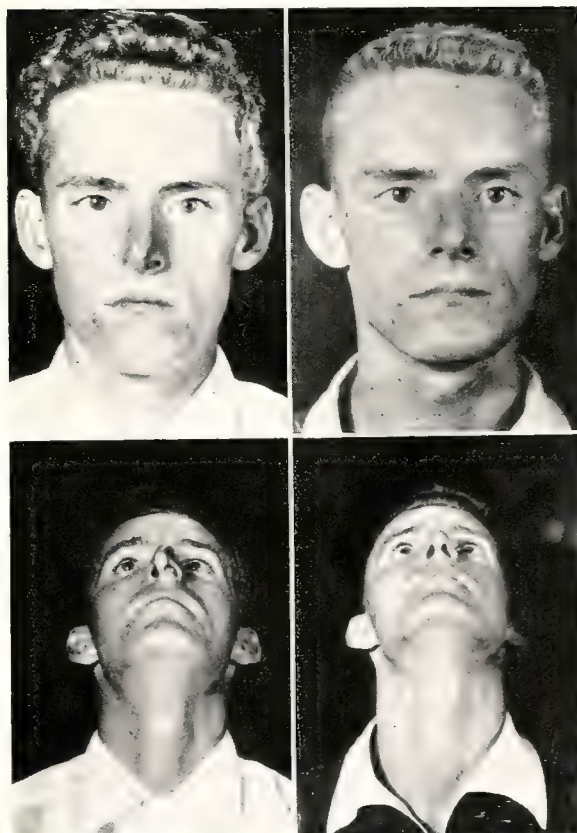


Fig. 2 (Case 2)



Fig. 3 (Case 3)

Case 3

The patient was a 28 year old white woman. The external nose showed a convexity of the nasal dorsum involving the nasal bones and the upper and lower lateral cartilages, producing a drooped tip. The free border of the nasal septum projected into the left naris. The columella was pushed into an oblique line. These deformities were corrected by removing the dorsal hump, reconstructing the upper and lower lateral cartilages, and correcting the caudal septal defect by replacement into the mid-line. This patient obtained an improved cosmetic as well as physiologic result.

Case 4

A 59 year old white man had a nasal obstruction of several years' duration, with a history of repeated trauma. The nose deviated to the left of the mid-line, and there was a total loss of tip support. The columella showed marked retraction, and the nasolabial angle was about 35 degrees. (The angle was so acute that the tip had to be brought up to 90 degrees or better before air hunger was relieved.) The septum was severely deviated in a sigmoid fashion, causing obstruction on both sides of the nose. Correction was obtained by a septoplasty, using the modified Metzenbaum technique, swinging an anterior septal strut to the

mid-line for tip support. The tip was elevated to about 95 degrees by lapping the lower lateral cartilages over the upper lateral cartilages. The retracted columella was corrected by inserting an autogenous graft in front of the anterior nasal spine. Although this aging patient had no interest in cosmetic improvement, the nasal obstruction could not have been relieved by any septal procedure alone. By virtue of combined techniques the best physiologic result and some cosmetic improvement were obtained.

Cosmetic Rhinoplasty

In our highly competitive world of today personal appearance plays a major role in the success of the individual. Through the years there appears a succession of characters, real and fictional, whose lives were influenced by their appearance—Cyrano de Bergerac, Quasimode, the Hunchback of Notre Dame, Beethoven (a social recluse because of his pock-marked face), and Jimmy Durante (who made his nose his career).

Facial deformities are particularly important since the eyes, nose and lips are the principal structures in facial expression. We are all familiar with the satisfaction achieved by a successful squint operation,

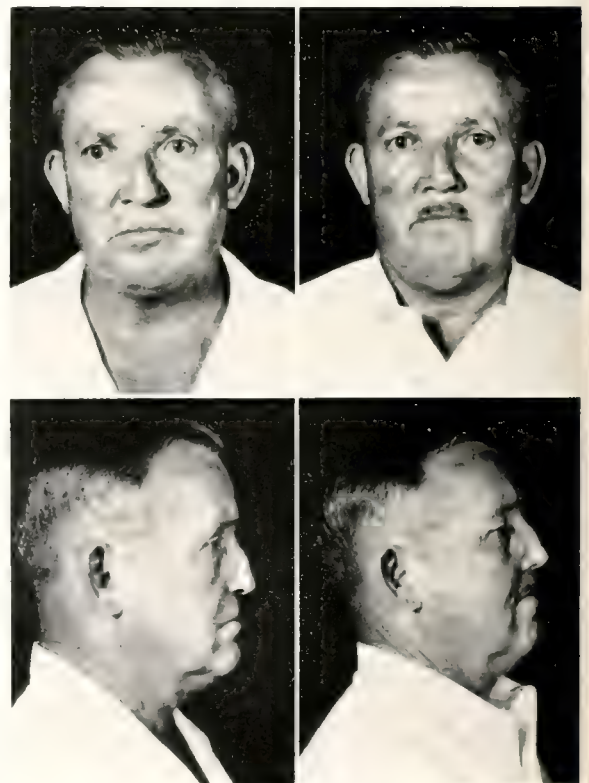


Fig. 4 (Case 4)

and contrariwise with the psychic trauma done a child or adult by neglecting to correct a squint. Yet how many parents and doctors are guilty of allowing a child to develop a personality defect right under their noses as the result of an external nasal deformity that is not corrected? Such nicknames as "eagle beak," "hook nose," "old nosey," and "birdbeak," have impaired the self-assurance of many a child or adult. We all like to appear normal. Most people partially adjust to deviations from normal,



Fig. 6 (Case 6)

but many do not. This last group deserves careful consideration.

The face of a boy or a man accepts minor irregularities without losing facial continuity; a slight hump, widening, or even a slight saddle are not displeasing, but angulation or marked curvature of the nasal dorsum does detract. The woman of today is constantly conscious of her appearance, and feels that a pleasing face is a necessity.

Case 5

A 22 year old white woman had a nasal deformity since adolescence. A basal view of the nose revealed the rectangular shape of the tip, the bulbousness of the lobule, the almost straight sides of the ala nasi, and the thickened and apparently short columella—the latter two deformities produced slit-like nares. Correction was obtained by thinning the columella and by removing interposed soft tissue. The lobule was reduced in size by resection and remolding of the alar cartilages. The convex dorsum was corrected by routine removal of the hump and by lateral osteotomies. The medical photograph was taken too soon post-operatively to show the end result of tip reconstruction. This patient developed a stitch abscess near the anterior nasal spine, causing an unpleasant septolabial angle. However, after this abscess resolved, a good result was obtained. The eyes, lips, and cheeks wore a relaxed expression, and the sharp angulated face was replaced by a soft attractive one.

Case 6

A 21 year old white woman presented a history of external nasal deformity of several years' duration. The external nose showed a narrow and undulating dorsum. The nasal bones and the upper and lower lateral cartilages contributed to the total deformity. Correction was obtained by complete rhinoplasty. The new projection of the tip caused the upper lip to appear longer; the sharp appearance of the face was softened by the new shape of the nose.



Fig. 5 (Case 5)



Fig. 7 (Case 7)

Case 7

A 29 year old white woman had had an external nasal deformity since adolescence. External

examination showed a convexity of the dorsum including nasal bones and upper and lower cartilages. The upper lip was short, and the face had a tense or mask-like appearance. Correction was obtained by complete rhinoplasty. The apparent change in the forehead and chin was particularly notable. The conversion of the convex line to a straight or slightly concave line changed the entire facial appearance. The nasolabial angle was also improved. The commercial photograph shows a softness of the face and a beauty of the lips and eyes that were not apparent previously. It is hard to believe that it is the same face.

Summary

A review of cases of nasal obstruction has been presented. The use of nasal accessory muscles in quiet respiration suggests nasal obstruction of sufficient degree to warrant surgical correction in most cases. Three groups of nasal deformities with illustrative cases as to correction have been presented.

Today with better understanding of nasal physiology, improved techniques in surgery and anesthesia, and the use of antibiotics, rhinoplastic surgery is now a procedure with few complications. It offers the patient the possibility of a complete correction of his nasal deformity.

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Aberrant Pancreatic Tissue in Stomach

Case Report

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"The presence of pancreatic tissue in an aberrant location, without connection with the main pancreas, can at the present time no longer be considered merely as a rare and casual postmortem discovery or as an unusual and interesting but incidental finding at operation⁽¹⁾." This comment was made nine years ago after a review of the literature on the subject. Further, it was stated that "there have been examples re-

ported in which aberrant pancreatic tissue was the site of hyperfunctioning, insulin-producing, benign or malignant neoplastic tissue." Carcinoma may develop from ectopic rests of pancreatic tissue. Such nodules of tissue may also be the cause of an intussusception, acting as the head of the invaginated portion⁽²⁾.

Case Report

The patient, a 23 year old white man, had complained of epigastric pain for two years,

[†]Deceased.



Fig. 1. Defect on greater curvature of antrum of stomach (arrow). The narrow channel to left of defect is the pylorus.

at times relieved by drinking milk. One year ago the pain became more severe and was accompanied by nausea and vomiting, the vomitus containing blood. Tarry stools also were noted then. For the past three months he had vomited blood and noted tarry stools "constantly." There had been a loss of 10 pounds in weight during the past three months.

Roentgen examination of the stomach by another radiologist was reported as showing a duodenal ulcer and a polyp in the antrum of the stomach. The patient was treated for ulcer, but showed no symptomatic improvement. The pain was particularly annoying, and he was referred to another physician who requested another roentgen examination of the upper gastrointestinal tract by one of us (S.R.). The positive finding at this time was a constant smooth defect, 1.5 cm. in greatest diameter, on the greater curvature of the distal portion of the antrum, containing a small ulcer or crater near its center (fig. 1). The duodenal bulb was normal. A diagnosis of a leiomyoma of the stomach was suggested, in view of the frequent gastric hemorrhages.

The patient was admitted into the hospital



Fig. 2. Fleck of barium in center of defect simulating an ulcer (arrow).

for operation. The hemoglobin was 15.0 Gm., and white blood cell count 7,500. Gastric analysis revealed a free acid of 5, with a total of 55. At operation, the surgeon (B.L.) found a soft noninvasive mass, measuring about 2.0 cm. in diameter, on the greater curvature of the prepyloric region of the stomach. The duodenum was normal. The distal one-fourth of the stomach and a portion of the duodenum were removed and a Billroth I anastomosis was made.

The pathologist's report was as follows:

"*Gross description:* Received unfixed is a portion of stomach measuring about 8 by 5 by 1 cm. On the mucosa there is a cone-like projection with a central depression. Beneath this in the submucosa and wall is an indistinctly outlined nodule that is gray and trabeculated in places, yellow and granular

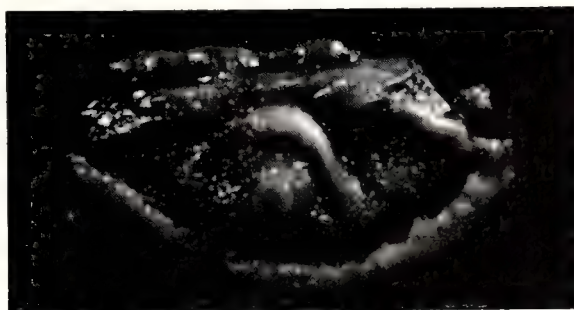


Fig. 3. Gross specimen (see under pathologist's report).

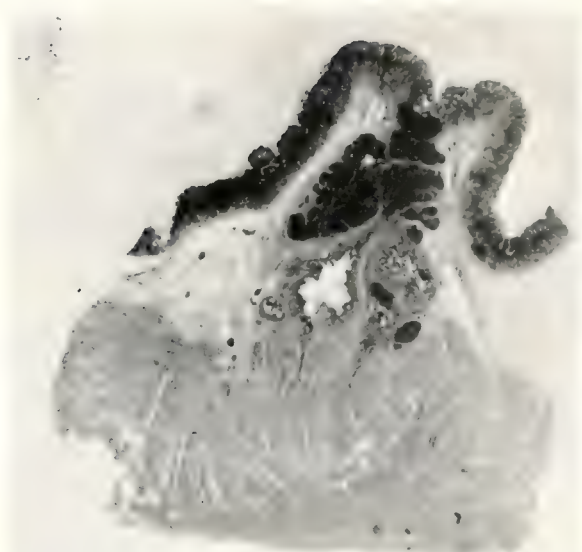


Fig. 4. Sagittal section through nodule (microscopic slide). The dark stained tissue represents the pancreatic cells.

in others. The intramural nodule is roughly oval and measures about 2 by 1 by 0.5 cm.

Microscopic description: The nodule consists of pancreatic lobules and ducts lined by columnar epithelium and mucous glands. The smooth muscle of the gastric wall mingles with the glandular tissue and forms a definite muscular wall to the ducts.

Diagnosis: Ectopic pancreatic tissue of stomach.

The patient made an uneventful recovery. Roentgen examination of the stomach four weeks later showed considerable retention of secretions and marked delay in motility, although the patient had no symptoms at this time. These findings were attributed to postoperative edema at the site of the anastomosis. On re-examination three weeks later, the stomach appeared normal except for the absence of those parts removed at operation. The patient has remained well to date, six months after operation.

Summary

A case of aberrant pancreatic tissue in the antrum of the stomach is presented. The patient had severe epigastric pain accompanied by hematemesis and melena. Roentgen examination of the stomach revealed a smooth filling defect containing a small

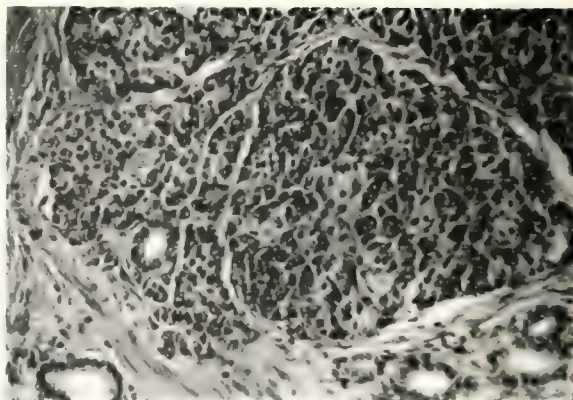


Fig. 5. Pancreatic tissue arranged in glands (X 100).



Fig. 6. Spot films of duodenal bulb, showing normal contour, with no evidence of niche.

"niche." The portion of the stomach involved was resected and the patient has been relieved of all symptoms to date, six months after the operation.

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The Present Status of Prostatectomy

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This paper contains our views on the present status of prostatectomy. The decision as to whether prostatectomy is necessary in many instances presents no problem; however, as in all pathologic conditions, there are border-line situations. Adequate urologic evaluation of a patient in the prostatic age group presenting varying degrees of lower urinary tract symptoms entails the use of a urinalysis, rectal examination, residual urine determination, blood urea nitrogen, excretory urogram, and endoscopic and cystoscopic examinations. From this relatively simple group of examinations and tests, the patient usually can be properly evaluated.

One point that should be emphasized is that prostatectomy is not necessarily indicated for all patients with enlarged prostates. There should be some evidence that the enlargement is causing obstruction at the neck of the bladder. This is usually evidenced on cystoscopic examination by varying degrees of back pressure changes within the bladder. Fortunately, as a general rule, patients presenting obstruction are now seen earlier than they were formerly. People have become prostate conscious. Physicians as well as the laity have come to recognize the hazard of delay, to the end that we seldom see the midnight distended bladder or mental deterioration from uremia. Prolonged preliminary bladder drainage has become the exception rather than the rule. After an office examination and diagnosis, patients are frequently admitted for prostatic evaluation and operated on on the second hospital day.

To bring us up to date on the status of prostatectomy, it might be wise to review briefly the history of the development of the various techniques.

In 1832 Guthrie⁽¹⁾ of England initiated a very crude and blind transurethral re-

section. Some time later perineal prostatectomy was done, antedating the suprapubic operation by several years. It was natural that with the more widespread revival of suprapubic cystotomy for stone towards the latter part of the nineteenth century, bolder surgeons should attempt removal of obstructing prostatic tissue.

The Suprapubic Approach

There is considerable controversy as to who performed the first suprapubic prostatectomy. While it appears that Freyer⁽²⁾ did not originate suprapubic enucleation of the prostate, he should be given credit for popularizing the operation previously described by Fuller⁽³⁾. This procedure, in turn, had been an improvement over the original "partial" prostatectomy. At this time, without the use of whole blood, good anesthetic agents, or effective drug therapy, the mortality from prostatic surgery was exceedingly high. Little was known of renal function tests or of the need for obviating the obstruction and improving the general status of the patient in the presence of uremia. The morbidity from opening the bladder and the long period of suprapubic drainage, necessitating a longer period of bed-rest and inactivity, increased the incidence of complications such as pulmonary emboli. The mortality of suprapubic prostatectomy in most published series of cases will be found to vary within recent years—about 5 per cent—even in the best of hands. Recently, with primary closure of the bladder following suprapubic enucleation of the prostate, the morbidity has certainly been decreased, but bladder spasm still remains a problem.

The Perineal Approach

In 1900 Young, impressed by the enthusiastic papers of Frendenberg⁽⁴⁾, reported his success in the treatment of prostatic hypertrophy by means of the Bottini⁽⁵⁾ electrocautery operation. Young secured his instrument and operated upon a series of patients

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by this method. This was the first true electrosurgical endoscopic procedure devised for removing prostatic hypertrophy. Because of the crude instruments available at that time, it was never popularized. Young used the Bottini operation for only a few years, but imperfect results caused him to turn his attention again to perineal prostatectomy. The suprapubic route had then lost favor, owing to the high mortality.

Over the next several years Young developed a concise and effective method for removing the prostate by way of the perineal route. In a book published in 1927⁽⁶⁾, he summarized the results of the operation of conservative perineal prostatectomy, presenting a total of 1,049 cases with a mortality of 3.4 per cent. This represented a marked improvement over the suprapubic procedure. As evidence of what might be accomplished by the perineal route, he presented a brief analytical report of 198 consecutive patients upon whom he personally operated during a period of three years and nine months, with no fatalities. It was noted that 21 per cent were over 70 years of age. That 198 patients, many of whom were feeble and had markedly impaired kidneys and hearts, survived the operation effectively demonstrated its benignity. In general, perineal prostatectomy carries a low mortality rate. In a recent series of 2,050 consecutive cases reported by Davis⁽⁷⁾ from the University of Nebraska College of Medicine, the over-all mortality was 2.9 per cent.

In the early part of this century few men were capable of performing this operation. Today, any well trained urologist should be able to perform any of the four methods, including the perineal.

In spite of the low mortality and low morbidity rate of perineal prostatectomy, it has not been extremely popular, because of the following factors: (1) the danger of injury to the rectum; (2) the higher incidence of urinary incontinence, presumably due to the interference of the perineal nerves as they cross over the ischiorectal fossa, and possibly to the operative interference with the external sphincter; (3) the occasional occurrence of persistent perineal fistula, requiring secondary closure; (4) the incidence of impotence, which appears to be somewhat higher in the perineal procedure than in the other three methods.

At this point in the development of the techniques of prostatectomies, an argument arose among urologists as to whether the suprapubic or the perineal procedure was the operation of choice. Without question, in well trained hands the mortality rate associated with the perineal approach was about 2 or 3 per cent, whereas with the suprapubic procedure, even in the best of hands, it ranged from 5 to 10 per cent around 1930. Presumably the higher mortality associated with the latter was due to prolonged suprapubic drainage and the longer period of bedrest. In the country at that particular time few individuals were technically capable of performing the perineal procedure.

The Transurethral Approach

At the turn of the last century urologists in America and Europe came to regard the existing techniques of transurethral prostatectomy either as useless or too dangerous. Thus the transurethral approach for relief of prostatic obstruction again fell into disuse. The trend was reversed, however, by the rapidly developing technique of open prostatectomy, which in both Europe and America was achieving such success as to render obsolete the less accurate and less satisfactory transurethral methods. Another quarter of a century was destined to pass before the modern resectoscope was created. During this period open prostatectomy continued to develop, and its advantages as well as its limitations were thoroughly evaluated. Although suprapubic and perineal prostatectomy were employed with increasing skill and remarkable success, genitourinary surgeons continued to search for some procedure that would provide a safer, less formidable, and more comfortable method of relieving prostatic obstruction.

The modern resectoscope owes its existence to three fundamental discoveries; the incandescent lamp, the high frequency current, and the fenestrated sheath. In the spring of 1931, Davis⁽⁸⁾ reported before the American Urological Association the results of his experience with a modified Stern resectoscope. In reviewing his series of 230 patients operated on without a death and with uniformly good results, he made the following statement: "With resection, the removal of the prostate was reduced to a minor surgical operation with the accuracy of a cystoscopic procedure and one which permits visualization of the minutest de-

tail." The medical associations accepted these reports by their appearance in leading medical journals. Physicians rapidly demanded instruments and electrical generators in numbers which soon obtained panic proportions and took on the appearance of a commercial exploitation. In 1932 McCarthy⁽⁹⁾ brought out a resectoscope which soon rendered all others obsolete. Its fundamental design has withstood the test of time, and is relatively little altered in the instrument today.

Any history of modern transurethral resection would be incomplete without a tribute to the warnings of Nathaniel Alcott⁽¹⁰⁾, who continually insisted during the early days of resection that the operation was "not safe and easy to perform," and that it was most emphatically not the minor surgical operation some authors were proclaiming it to be. Alcott⁽¹⁰⁾, in 1932, reported a series of cases which showed that the operation was attended by many difficulties and dangers, and that the mortality and morbidity could, under adverse circumstances, be exceedingly high. Following the development of the transurethral procedure within a relatively short period of time, the majority of prostatic operations through the United States were done by this route. The invention of the Foley hemostatic catheter also constituted an important addition to the field.

At this time the closed method of prostatectomy might be expected to give way to the transurethral procedure. From about 1935 to 1947 the majority of prostatectomies done in the United States were done by the transurethral route. The public, as well as the medical profession, had been seeking a means of relieving prostatic obstruction that would be accompanied by a reduced hospital stay, lower morbidity and mortality, and as satisfactory an end-result as that secured by the perineal or suprapubic prostatectomy. The introduction of transurethral resection in 1931 gave hope that the Utopia of prostatic surgery had been reached. Those advocating the open approach, of course, were forced to defend it against the so-called "closed methods." The transurethral procedure in the hands of some has given good results; however, in the majority, secondary operation for inadequate resection, urethral stricture, secondary bleeding, and continued pyuria, left much to be desired. Chemo-

therapy, antibiotics, and preoperative care—all reduced the morbidity and mortality and hospital stay in all three approaches. All of this left many urologists dissatisfied with all or part of the three classical methods.

The Retropubic Approach

In 1947 Millin⁽¹¹⁾, of England, published a monograph on a new approach to the prostate known as a retropubic prostatectomy. The extravesical retropubic approach enables us to deal with all pathologic conditions met with in the organ and its contained urethra. Essentially this operation entails a transverse incision made in the prostatic capsule, and enucleation of the prostate under vision. For many years the space of Retzius had been forbidden territory to the urologist because of the prevalent opinion that infection in this area was difficult to eradicate and that entering it gave rise to many serious complications. After publication of Millin's excellent monograph, urologists throughout the United States immediately began doing large numbers of operations by the retropubic route.

In the beginning, as with any new procedure, there were many problems. Bleeding at first was a real obstacle, and many urologists gave up the method because of the difficulty in controlling hemorrhage. Another complication was the disease known as osteitis pubis. Amazingly, large numbers of cases of this condition were reported shortly after the new procedure was introduced in this country; however, rapidly, and apparently for no good reason, the incidence has dwindled to virtually zero.

After the initial wave of retropubic operations in this country, many surgeons gave up the procedure entirely. A considerable number of others felt that it provided an excellent approach for removing an enlarged prostate or obstruction at the neck of the bladder—one in which direct access could be made, bleeding could be controlled under vision, the prostatic capsule could be closed tightly without any suprapubic drainage; one in which there would be no interference with the perineal nerves, as is the case in the perineal procedure, and no suprapubic leakage of urine as in the suprapubic procedure; and one also in which the adenoma would be enucleated completely with no residual tissue, as is so commonly true in the transurethral resection. This would

obviate the need for secondary operations and control of hemorrhage which is so common following the transurethral resection of the prostate.

In Campbell's text on urology⁽¹²⁾, only recently published, Millin has a section on retropubic prostatectomy. In it he states that he and his assistants have performed more than 2,000 operations by this approach. Between 1940 and 1945, he states, some 60 per cent of their prostatic operations were being performed by the transurethral route, with open operations equally divided between the 1 and 2 stage suprapubic procedures. During the past five years, less than 20 per cent have been dealt with endoscopically, the remainder by the retropubic approach. Well over 2,000 cases of the latter have been reported in the American literature, the mortality rate varying from 1.6 to about 4½ or 5 per cent. Considering that this is a relatively new technique, the enthusiasm of its proponents is impressive. The mortality in our first 100 cases, which we presented in this paper, was considerably higher; in fact, the majority of our deaths occurred in the first 100 cases. Towards the latter part of the series, we had done almost 200 operations without a single death. To quote from the introduction of Millin's monograph: "The ideal operation must secure complete removal, not only of all existing obstruction, but of all potentially obstructive tissue with a minimum mortality, low morbidity, easy convalescence and rapid return to normal health and urinary function. The operation, moreover, should not be outside the scope of any trained urological surgeon. In this way alone can the greatest good be administered to the greatest number."⁽¹¹⁾

Functional End-Results of Prostatectomy

There are divergent views concerning the proper criterion for each of the four major surgical approaches to the prostate. The important differences of opinion primarily concern the character and permanence of the functional end-results. Since it has been frequently demonstrated that a surgeon well trained in one particular type of prostatectomy can produce as low a mortality as can be obtained by any of the other methods, diligent and critical surveys of anatomic and functional results 5, 10, and 20 years after the operation have been few.

That there has been need for reducing

the morbidity after prostatic surgery was noted by Shivers and Groom⁽¹³⁾, who presented to the American Urological Association a detailed statistical analysis of the results of prostatectomy compiled from replies to questionnaires submitted to the members. Their tabulations of 14,865 cases revealed that functional results were inadequate in approximately 1 of every 12 cases (8.4 per cent). This astonishing incidence is probably minimal, since the term "satisfactory functional results" has such a wide latitude of definition, and often depends on the urologist's attitude and the patient's tolerance. Many surgeons, when evaluating the results of prostatectomy, consider only the removal of the obstructive factor and the elimination of residual urine, being insufficiently critical of the degree of return to normal micturition. The question as to how frequent urination must be to be considered a dysfunction or what degree of straining is abnormal is typical of the importance of the personal "equation and interpretation." More recently, more careful consideration has been given to the morbidity following prostatectomy by many men in the field. Fairly recently, Hess⁽¹⁴⁾, who in past years has been a strong proponent of transurethral prostatectomy, made a study of the complications arising from prostatic surgery. Briefly, his observations were as follows:

1. *Recurrent or persistent prostatic obstruction.* This complication was found to be most common following transurethral resection, and he states that it was the greatest single factor dampening his enthusiasm for resection.

2. *Persistent infection.* He found that this problem was greatest in cases of initial resection.

3. *Stricture of the urethra.* This was predominantly a complication of resection.

4. *Sexual impotence.* For the prevention of this complication he was inclined to consider the applicability of endoscopic or retropubic enucleation. His analysis of late morbidity dampened his enthusiasm for endoscopic resection and increased his respect for clean open enucleation.

In brief, I believe that the trend of prostatic surgery is shifting from the closed endoscopic method to clean open direct-vision enucleation. In 1948 we started doing retropubic prostatectomies. Along with many

others, we encountered difficulties with the initial operations until we could devise a satisfactory technique. We are now enthusiastic in regard to this approach.

Review of 450 Retropubic Prostatectomies

The following statistics were obtained from the first and consecutive 450 retropubic prostatectomies done by the authors at Rowan Memorial Hospital, Salisbury, North Carolina. This series was started in the latter portion of 1948 and extended to the latter portion of 1955. Because of inadequate postoperative time, none have been considered for the last six months. The average age of the patient has been 67 years.

The suprapubic drain, which in this operation is left in the prostatic capsular incision, is routinely removed on the first postoperative day. In 450 cases we have had only 1 prevesical abscess, and this was in an unsuspected grade 4 anaplastic adenocarcinoma of the prostate which had involved the anterior capsular area. It developed and had to be drained some three weeks after the operation and after the patient had gone home.

The Foley bag catheter, size 18 or 20 French and with a 30 cc bulb, is removed on the fourth postoperative day, and less than 1 per cent of the patients have required recatheterization for urinary retention. It is worth noting that on several occasions the catheters have ruptured or leaked water from the balloon, and have come out within the first 24 to 48 hours after surgery. None of this group required re-catheterization, but we do not advocate removal at this early date.

Postoperative bleeding has been one of the bugaboos of prostatic surgery, particularly of transurethral surgery. We have differentiated two stages in these statistics. Primary bleeding, which we limit to the day of surgery, we feel in a large majority of cases is probably the result of inaccurate control of bleeding during the operation. We have had far fewer of these instances in the last 300 than we did in the first 150 cases. There were 15 cases of primary bleeding for an incidence of 3.4 per cent. Two of these required actual open surgical control, while the remaining 13 could be controlled by fulguration and other endoscopic means. There were 25 cases, 5.5 per cent, of secondary bleeding, by which was

meant bleeding after the first day of surgery and bleeding that required any type of treatment to control, even re-insertion of the catheter for evacuation of clots. These cases of secondary postoperative bleeding have been quite easy to control, and we have had none that have recurred twice.

Patients were pleased that the length of postoperative hospitalization averaged only 8.8 days. Seventy-five per cent of the patients remained in the hospital seven days after the operation. We do not let them go home in most cases, unless they have adequate urinary control and are ambulatory to the extent of dressing, going to the bathroom, and so forth. We routinely remove the sutures on the seventh day and let the patient go home the same day, though of course there are exceptions to any rule.

The mortality in these 450 cases was 2.4 per cent (11 deaths). We feel that this is a creditable rate. It is of interest that we have only 1 surgical death in the operating room. In this instance, the operation had been completed and the patient had gone through it very well. He then had an acute coronary occlusion which terminated in death. Seven deaths occurred before the tenth postoperative day, and 4 after. One patient had gone home and was doing fine until he had a sudden massive pulmonary embolus. An analysis of the deaths shows that 4 deaths resulted from coronary disease, 5 from pulmonary emboli (1 being the late one mentioned above), 1 from bilateral acute, bilateral fulminating pyelonephritis. There was 1 rectal injury followed by a cardiac death after further surgery on the colon had been carried out.

Control of the urinary flow has always been one of the complications of prostatic surgery. As mentioned previously, certain procedures are more likely to produce this condition, and the retropubic approach, it seems to us, has had the advantages of the perineal approach and few of its disadvantages. Urinary control is rarely a problem following retropubic prostatectomy.

Among the 450 cases, we have had no case of complete incontinence. The word "incontinence" is of course, a relative term. What is continence to us might be regarded as incontinence by the patient. We are, therefore, classifying two patients as incontinent. Both work at their regular jobs until early afternoon before beginning to have any leakage. Neither is incontinent during

the night, but certainly they do not have complete urinary control.

The pathology of the removed prostates has been of interest. No retropubic prostatectomy has been done on a patient in this series who was suspected of having carcinoma before surgery. We have done some radical retropubic prostatectomies, but they are not, and should not be, included in this particular group. The incidence of carcinoma found at operation was 10.2 per cent. These cases had been unsuspected, and in the majority of cases did not occupy the classically described position in the prostate; many were located in the anterior capsular region.

Osteitis pubis has been discussed a great deal in connection with retropubic surgery. We had 3 cases in the first 100 operations, but none since. All of these cases were self-limiting, a characteristic of the disease, and though we have tried several treatments, its course was apparently little altered. In attempting to analyze why we have had no osteitis pubis in the last 350 cases, a fact for which we are supremely grateful, we are having to assume that it is due to improvement in technique.

Urethral strictures have not occurred. Vesical neck contractures have occurred in 4 patients, necessitating further correction. Persistent pyuria after 6 or 8 weeks has been rare, and requires further investigation as to cause.

The majority of the patients undergoing postretropubic prostatectomy are cured and have no persistent lower urinary tract symptoms.

Conclusion

In our experience, retropubic prostatectomy has proved an excellent method of removing the prostate and may be used in

a large majority of cases. The technique is founded on sound surgical principles—direct, clean, open enucleation. The mortality compares favorably with that of the other three established methods. The morbidity and functional end-results are, we believe, far superior to those of all other methods.

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Adjustments

When a catastrophe strikes an individual, his family is affected and, depending upon his livelihood, his social position, and his interests, an everwidening group of circumstances may perforce be altered. As Ruesch points out, the way a man lives may be responsible in part for the disease he will contract. His personality affects the way he will react to certain catastrophe. Thus it is not surprising to see that recovery from a disease may be related to personality factors. An aggressive person may overexpose himself to danger and may disregard his physician's admonitions, so that convalescence is unduly prolonged.—Bortz, E. L.: *Mastering Long Term Illness, Geriatrics*, 11:450 (October) 1956.

Premature Infants

An Evaluation of the Results of the First Year of Operation of a Secondary Premature Center in a Small Community Hospital.

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Innumerable papers have been written about premature infants—on how to prevent premature delivery, how to care for the premature infant after birth, and why premature infants die. Despite the fact that scientific knowledge concerning prematurity has advanced greatly in the last few years, it still ranks as the leading cause of neonatal death. Special premature nurseries at large medical centers with specially trained personnel offer the best chance of life for the infant, but these centers are not available to the great majority of premature infants born in North Carolina. Therefore, smaller secondary premature centers have been established in strategic areas throughout the state. It is the purpose of this paper to outline the steps taken to develop such a center in a community hospital and to evaluate the results of its first year of operation.

General Data

The Roanoke-Chowan Hospital in Ahoskie is a 75-bed general hospital serving a population of about 80,000, chiefly rural in nature. Because of the presence of the hospital and staff, an unusually high percentage of obstetric problems is referred by general practitioners and mid-wives in the community. Also referred to us are the premature infants from a six-county area and two other small hospitals. Because of this situation, steps were taken to establish necessary nursery facilities.

Physical Facilities

The booklet, "Standards and Recommendations for Hospital Care of Newborn Infants, Full Term and Premature," published by the American Academy of Pediatrics, was used as a guide, and modifications of existing nursery facilities were made. There was a nursery for white infants, a nursery for colored infants, and a small isolation nursery. A separate premature unit had to be devised for both white and

colored infants. This was accomplished in the white section simply by erecting a partition through the nursery, which was large enough to result in two fairly good-sized rooms connected by a passageway. A separate room across the hall from the colored nursery was taken over to provide facilities on that floor. The isolation unit is maintained for both white and colored babies; it has space for only 3 patients, but until now we have encountered no difficulty, since we move the babies into the main nursery as quickly as possible following isolation.

Formulas are prepared in a room adjoining the central supply room in another section of the hospital and are autoclaved terminally before being stored in a refrigerator in the same room. The distance of this room from the nurseries has not caused any noticeable inconvenience. In fact, the nurses probably enjoy temporary relief from the babies during the short time required to obtain formulas.

The hospital provided the necessary equipment. There were, at the beginning, only two Castle Humidicribs. To these were added five Gordon Armstrong incubators and one Isolette, plus other accessories. Public health departments in the surrounding area were supplied with portable incubators and oxygen for the proper care of the infant during transportation from distant places to the hospital nursery.

Personnel

A pediatrician is in charge of the nurseries. A graduate nurse was obtained to take a postgraduate course in premature nursing under the supervision of the North Carolina State Board of Health. On her return she was made supervisor of all nurseries and, with her assistants, now cares for the full-term and premature infants. Practical nurses and nurses' aides actually provide most of the general care, with the technical procedures, such as gavage, being performed by the specially trained nurse.

All personnel except the head nurse have

From the Roanoke-Chowan Hospital, Ahoskie, North Carolina.

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Table 1

Classification by Weight			
Weight (Gm.)	No. Infants	No. Deaths	Mortality (Per Cent)
0-1000	5	4	80
1001-1500	16	4	25
1501-2000	14	3	21
2001-2500	25	0	0
Total	60	11	18.3

been trained locally, and all are regularly employed at present, allowing us to keep the same nursing force.

Nursing Routine

No effort will be made to explain the nursing routine in detail except to comment on its flexibility, which facilitates the nursing problem. In the absence of the graduate nurse, polyethylene catheters are left in place in those patients requiring gavage feeding. Dalactum or Similac is used as a routine formula, and water soluble vitamins and iron are added when the baby is about one week of age.

Results

The results of our efforts have been gratifying. In the first 12 months of operation we cared for 60 premature infants, and lost by death only 11. Forty-one infants were born in the hospital, and 19 were brought in from the outside. Forty-four were Negro and 16 were white.

The 60 babies were divided by weight into three groups. The mortality of each group was as follows: group 1 (1,000 Gm. or less): 5 infants, 4 deaths, mortality 80 per cent; group 2 (1,001 to 1,500 Gm.): 16 infants, 4 deaths, mortality, 25 per cent; group 3 (1,501 to 2,000 Gm.): 14 infants, 3 deaths, mortality 21 per cent; group 4 (1,500 to 2,000 Gm.): 25 infants, no deaths.

Our over-all mortality rate was 18.3 per cent. This compared favorably with the big medical center average of about 15 per cent. The average mortality rate for six of the seven other secondary centers in North Carolina was 17.2 per cent, varying from 12.2 to 26.8 per cent⁽¹⁾.

Of the infants who died, 3 were among the 19 who were brought in from outside

Table 2

Comparison of Infants Born in Hospital With Those Born Outside

	Total	Died	Mortality (Per Cent)
Inside hospital	41	8	19.5
Outside hospital	19	3	15.7

Table 3

Racial		
Race	No. Infants	Deaths
White	16	0
Negro	44	11*

*9 males, 2 females

(a mortality of 15.7 per cent), and 8 were in the group who were born in the hospital (mortality, 19.5 per cent). Nine of the deaths were in males and 2 in females. Without going into the causes of prematurity or of death, I should say here that all of our deaths were in colored infants.

The average length of stay for all infants was 20.1 days.

Comment

Our statistics differ little from those reported by other workers with premature infants. Although we feel that we are doing a fair job in our secondary premature center, we continue to strive for improved results. A great deal of credit must go to the hospital administration for assistance in providing the necessary physical and nursing facilities. Our adequate space and superior nursing care has cost comparatively little, and without them nothing could have been accomplished. It is proposed that any progressive community hospital can establish a premature center such as ours with little or no financial strain.

Summary

An evaluation of the first 12 months of operation of a secondary premature-center in a small community hospital has been presented. Our over-all mortality of 18.3 per cent has been gratifying.

A method of developing a similar premature program in other small hospitals is outlined from our experience.

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The Value of Practical Health Education in Getting People to Consult the Doctor

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WASHINGTON

It is well known that the success of any health program depends on the private physician. Public health officers look to him for professional guidance and support. A major responsibility of the Health Department, as it seeks to protect personal and community health, is to encourage the individual to consult his family physician at regular intervals or early in the course of a disease, when treatment is most effective and the opportunity for cure is best.

The statement, "See your doctor once a year for a complete physical check-up," is excellent advice; however, in many small rural communities doctors are few, incomes are low, and waiting rooms are filled with patients. In this situation the advice to get an annual check-up is idealistic rather than practical.

While working toward this ultimate goal, we need a more direct and specific method of getting selected individuals who need diagnosis and treatment to consult their family physician, and they should accept personal responsibility for seeing the physician of their choice.

Combined Case-Finding Procedures

Chest x-ray surveys and mass blood-testing programs are long established and accepted case-finding procedures. People suspected of having chest diseases, cardiac abnormalities, or venereal disease have a specific reason for seeking medical attention. Multiple methods of case-finding are often conducted simultaneously in order to save time and effort and avoid duplication in the educational program needed to encourage people to make use of the service when it is offered.

There is added advantage in combining the services in rural communities where the mobile x-ray unit can be set up at a crossroads store, for here the simple matter of transportation to an urban x-ray unit is a problem.

Our experience has shown that offering a blood-test to people who come to the unit for an x-ray increases attendance. In general, the offer of an additional service has had a greater appeal to the public. For this reason, and in recognition of the growing importance of the chronic and degenerative diseases in individual and community health, the Beaufort County Medical Society in 1953 approved a plan to provide three additional health tests to be conducted in conjunction with the chest x-ray and blood test survey.

These were a hemoglobin determination and a urine examination for sugar and albumin. They were approved only as an educational and case finding procedure during our Health Survey; they were not made a part of routine Health Department activities. No follow-up was done to see that the people screened actually went to see their doctor. The responsibility of the Health Department ended with the completion of the tests and the referral of suspected cases to private physicians.

Diagnosis and treatment became the personal responsibility of the patient and his physician. Informal discussion of the health survey with the local medical society indicated that a large proportion of those referred did seek medical advice. Also many private patients who did not participate in the health survey went directly to their family doctors for these tests.

Program Against Diabetes

A comparison of the death rates from diabetes in Beaufort County for the two-year periods preceding and following the 1953 health survey indicates a 65 per cent decrease for 1953-1954 as compared to 1951-1952, while the national death rate from this disease remained almost unchanged, and that of North Carolina increased 9.5 per cent. This decrease, achieved over a four-year period in a county of 40,000, is not the result of chance. The health survey operated for only six weeks and screened only 25 per cent of the population. Alone it would not account for

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such a decrease. The success was due in large measure to increased lay and professional interest in diabetes resulting from the educational program that preceded the survey. This program consisted of the following measures:

1. A scientific program on diabetes was presented to the medical society.
2. The value and meaning of the health survey was presented to civic and service clubs, and to school children.
3. The press, radio and television gave the program full support.

Volunteer help

Community interest was increased by the many opportunities for volunteer help:

1. School children wrapped test tubes in sheets of instructions for collecting urine specimens, and took them home to their parents.
2. Home Demonstration clubs throughout the county took the responsibility of furnishing volunteers to help at the unit by doing clerical work and assisting with the tests under the direction of a nurse.

In 1954 the Home Demonstration Clubs devoted their Annual Achievement Day program to Health Survey findings. When they learned what their volunteer efforts had accomplished in improving health in our county, they requested another survey, for which they secured a special appropriation from the county commissioners to pay for supplies and the salary of a nurse to supervise the tests.

Following the 1955 Survey, because of the interest of the Rural Health Committee of the State Medical Society, each doctor

was asked to report to the Health Department on the patients who were referred to him. Cooperation was excellent. Reports indicated that of 237 individuals who were given written appointments to see their family doctor, 198, or about 80 per cent, sought medical attention.

One hundred fifty-six of these had positive signs of disease as follows:

<i>Cause of Referral</i>	<i>Diagnosis Confirmed</i>		<i>New Cases Found</i>
Positive sugar	78	56	18
Positive albumin	65	41	13
Low hemoglobin	94	59	22

A trip through the health unit in itself is an educational experience. The individual is x-rayed first; then the blood-test is made by a nurse or technician. The person watches his own hemoglobin test, which is done by the copper sulfate specific gravity method as used by the Red Cross. A volunteer observes and records the results.

He also witnesses the urine tests for sugar and albumin. Here the clinitest and Bumin test methods were used. All suspicious tests were repeated by the nurse, who explained the importance of seeing a physician where referral was necessary.

Conclusion

Our experience in Beaufort County has shown that consolidation of five quick, easy tests—x-ray examination, blood test, hemoglobin determination and urine examination for sugar and albumin—increased attendance at the x-ray unit. The results gave one person in ten a specific reason for seeing his family physician for a complete physical examination.

. . . the psychologic management of the patient is the most essential step in planning for recovery. Not only do happiness and joy of living depend upon freedom from fear and anxiety, but the physical concomitants of anxiety have an unfavorable influence on physiologic processes. In such a situation, the attending physician must be father confessor, counselor, and friend. He must not only allay the fears of the patient but he must reassure other members of the family. However, if the doctor himself is anxious and impatient, he may lose his best opportunity to bring calm and peace of mind to the people concerned. The release of tension in a critical situation is probably the first and most important job of the family doctor.—Bortz; E. L.: *Mastering Long Term Illness, Geriatrics* 11:450 (October) 1956.

North Carolina Medical Journal

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

NOVEMBER, 1956

THE ELECTION

On November 6 the voters of the United States of America gave President Eisenhower an overwhelming vote of confidence. At the same time they gave the Democratic party control of both the Senate and the House of Representatives. This evidence that a large proportion of our voters are independent in their thinking is a whole-some sign.

It is evident that the people of the country trust Eisenhower. They believe in him enough to take the calculated risk that he may not live out his term of office. While the situation in Egypt and in Hungary probably made a number of independents vote for him, it is almost certain that he would have been elected by a decisive majority without this incentive.

While Eisenhower ran far ahead of his party's other candidates for office, Stevenson ran far behind his. One of the best cartoons of the campaign pictured numerous Republican candidates riding on Eisenhower's coat tails, while Stevenson was shown riding on the coat tails of the other Democratic candidates.

Many Democrats as well as Republicans and independents have expressed disappointment in the type of campaign conducted by Stevenson. After his impressive victory over Truman in Chicago, it was thought that without any obligation to Truman he would have a much stronger appeal to the voters than he had in 1952. He was expected to take the high road in his campaign, but instead he too often took the low one. The truth is that the two candidates held so many views in common that it was hard for Stevenson to find clear-cut reasons for changing administrations. An editorial in the July issue of the *Texas State Journal of Medicine* said that there was so little difference in the two parties that it was not worth the voter's time to go to the polls; that what this country needed was not a third party, but a good second party. It must be admitted that there is a good deal of truth in this statement. Stevenson, however, did promise larger and juicier slices of pie in the sky without suggesting how the baking and serving thereof would be paid for. On the other hand, Eisenhower withstood tremendous pressure to lower taxes rather than carry out his promise to balance the budget. This could have made part of the difference in the votes given the two men.

For the first time within a century we have a president elected from one party and both houses of Congress from the other. The comment has been made that this will not make as much difference as would appear on the surface, since many Democrats in both the Senate and in the House of Representatives will go with the President in most of his objectives.

Few people are cynical enough to question Eisenhower's absolute honesty, or to doubt that he accepted the nomination for another grueling four years in office from the same stern sense of duty that made him serve as supreme commander of the American army in Europe.

Now that the election is over, it is to be

hoped that all Americans will unite behind President Eisenhower, and will join him in praying for Divine guidance in the trying times ahead. Surely most of us can agree with the message sent by Mr. Stevenson in conceding the election: "You have won not only the election, but also an expression of the great confidence of the American people . . . tonight we are not Republicans and Democrats, but Americans. We appreciate the grave difficulties your administration faces, and, as Americans, join in wishing you all success in the years that lie ahead."

* * *

HAZARDS OF RESERPINE

The Food and Drug Administration of the Department of Health, Education and Welfare has sent a letter to all medical and pharmaceutical journals which is so important that its most pertinent sentences are quoted for the benefit of all who prescribe reserpine—and who does not?

* * *

"When reserpine was first introduced the available evidence suggested that it was a drug of very low toxicity, with no contraindications, and with a wide range of safe dosage. . .

"Papers and exhibits presented at the meeting of the American Medical Association held in Chicago June 11-15, 1956, emphasized the importance of apprising physicians of the latest information on the potential hazards of reserpine. There is an urgent need to bring all reserpine labeling into conformance with the best current available knowledge and to insure that this information reaches the practicing physicians.

"In the treatment or hypertension, or of anxiety states on an outpatient basis, it is the present consensus that the usual recommended maintenance dose should be 0.25 mg. daily. While doses up to 1.0 mg. daily may safely be recommended for the initiation of therapy, they usually should not be continued for longer than a week. No substantial benefit is obtained by larger doses sufficient to compensate for the added hazard. . . if adequate response is not obtained from this dosage, it is well to consider adding another hypotensive agent to the regime rather than increasing the dose of reserpine.

"Continued use of reserpine in doses of 0.32 mg. daily has been shown to increase gastric secretion and gastric acidity in a significant number of cases whereas daily doses of 0.25 mg. have not been shown to do so. . . More important, reserpine in daily doses of 0.5 or 1.0 mg. produces severe depression in a significant number of individuals. . .

"In our opinion it is important, in the interest of safety, to incorporate the above concepts in your labeling for reserpine."

Our readers should remember also that reserpine is absorbed so slowly that one daily dose is as effective as multiple doses.

* * *

DR. JOHN B. WRIGHT

Our State Society lost one of its most honored members when Dr. John B. Wright of Raleigh died on September 29, at the ripe age of 82. Dr. Wright was president of the State Society in 1933. The year before he was made the second president-elect, when Dr. M. L. Stevens became president.

Dr. Wright, as noted in the memorial tribute on page 538, was a real pioneer in the specialty of eye, ear, nose and throat. He was for a long time the only bronchoscopist between Baltimore and Atlanta.

Dr. Wright was an all-round citizen as well as an excellent doctor. He was an elder in his church, and was active in worthwhile community projects.

One of the sincerest tributes to him is the fact that two of his three sons followed in his professional footsteps; Dr. James R. Wright, who chose his father's special field, and Dr. Isaac C. Wright, who is an internist. Both live in Raleigh.

To them and to the other surviving members of his family this JOURNAL extends sympathy and also congratulations upon the goodly heritage left them.

* * *

The person who has not feared life need not fear death. The intelligent do not fear sleep, but welcome it as a necessary oblivion at the end of the day. The wise do not lose the desire to sleep, nor the desire to die when the time comes. To be unable to want to die is as bad a predicament as to be unable to want to go to sleep. There are certain inevitable things: sleep cannot be denied, nor death gainsaid.—Warbasse, J. P.: *The Ultimate Adventure*, Geriatrics 11:468 (Oct.) 1956.

President's Message

THE DOCTORS INSURANCE PLANS

During the past several months several minority groups seem to have developed rather strenuous opposition to the action of the House of Delegates in May of 1956 concerning the new Doctors Insurance plans. As president, I feel that it is time for me to rise and support the recommendation of the Medical Advisory Committee on the Doctors Insurance Plans and the action of the House of Delegates. Of course my opinions are entirely personal. I have been on the Executive Committee since the inception of The Blue Shield Program, however, and feel that my views are well studied. After careful study of all expressed objections to the two plans, I am convinced that these objections are based either on selfishness or misunderstanding. By selfishness I mean professional rather than personal selfishness—that is, placing the welfare and the policies of the medical profession before the welfare of the patient.

The objections, as well as I can gather, fall pretty well into four classes. First, there is objection to the many inequities in the plans. Second, there is a sincere but somewhat overzealous, in this case, opposition to any third party interference in the private practice of medicine. Third, there is direct objection to the Hospital Saving organization. Fourth, many members of the medical profession have an innate tendency to oppose anything new.

The first objection has to do with inequities in the present plans. It should be understood that any plan of such magnitude is bound to have many inequities, and they should be treated more tolerantly. The inequities in the Doctors Insurance Plans have been or are being corrected. The so-called discrimination against the nonparticipating physician has already been corrected. The objection based on individual patients' holding multiple policies and the inequities of some fees is being studied and I am sure will be corrected in the near future.

The charge of third party interference in the practice of medicine I do not feel is justifiable in this case. Nonprofit, voluntary health insurance was originated by

the medical profession in this country for two primary purposes: (1) to enable people of limited income to pay their medical expenses, and (2) to combat socialized medicine. It seems that some doctors are very strongly opposed to any service program and would like to have them all abolished. I feel that in North Carolina we should either wholeheartedly endorse both of our Doctors Programs or else abolish all service programs. In abolishing service programs, however, we should realize that we would be emasculating the entire voluntary, nonprofit medical insurance program in our state.

I do not believe that nonprofit voluntary health insurance programs could be continued on an adequate level without some form of service program. Such a limitation of our medically controlled insurance program would be catastrophic to the entire medical profession, because it would inevitably lead to compulsory health insurance.

The third objection—direct opposition to the Hospital Saving organization—I cannot help but believe is primarily due to misunderstanding. There has been some suggestion that the State Medical Society take over the Blue Shield Program with full authority to run it. This idea was studied thoroughly several years ago and strenuously rejected as being impractical and, at that time, financially impossible. As to the criticism that the Medical Society should have control of the Blue Shield Program, I do not know of any specific instance since its inception in which the Medical Advisory Committee, appointed by the President of the State Medical Society, has not had the entire say on setting the fee schedule in the Blue Shield Program. This has been confirmed by members of that committee. As to the charge that the medical profession is inadequately represented on the Board of Directors of Hospital Saving Association, I can truthfully say that during the past 11 years, with the exception of one year, there has been complete satisfaction with the management of Hospital Saving Association by the medical representatives on its Board of Directors.

At present the State Medical Society has four representatives on that Board, and an Advisory Committee of nine members, all of whom, to my knowledge, are completely satisfied with both Doctors Plans and the management of the Blue Shield Program by the Hospital Saving Association. These 11 men stand high in the medical profession and have contributed enormously to the progress of the State Medical Society. I do not believe it is just to ignore or refute their continued endorsement of the program and their absolute confidence in the agency handling it.

As to the objection raised by some members of the medical profession who are simply opposed to anything new, I do not feel that this objection is worthy of discussion.

I believe that the great majority of us in the Medical Society of the State of North Carolina who are in favor of our two Doctors Insurance Plans should be outspoken in our endorsement. It would be wise to encourage our critics to turn their energies to more serious and devastating problems such as the passing of federal bills like H. R. 7225 and, as one very close friend of mine expressed it, "stop shooting at the sparrows and let the buzzards fly."

Donald B. Koonce, M.D.

New Antibiotic Used in Treatment of Tuberculosis

The case of severe pulmonary tuberculosis which appears to be hopeless because of failure to respond to all other therapeutic agents frequently is treated successfully now by a new antibiotic.

After a clinical trial of two years, during which several hundred patients were studied, Pulvules 'Seromycin' (Cycloserine, Lilly) have been introduced by Eli Lilly and Company.

Lilly also will supply Pulvules 'Seromycin' c 'INH' (Isoniazid, Lilly). Preliminary studies indicate that the combination may retard emergence of resistant strains of bacteria and permit cutting the dosage of 'Seromycin' in half without loss of therapeutic effect and with fewer side reactions.

In some severe, resistant cases studied during the clinical trials, 'Seromycin' produced "dramatic" improvement. Sputum became negative for the tubercle bacilli; x-rays of the lungs showed clearing or marked improvement; reduction of fever occurred promptly; patients felt better, their appetites improved, and they gained weight.

BULLETIN BOARD

COMING MEETINGS

Gaston Memorial Hospital Symposium — Gastonia, November 28.

Seaboard Medical Association, Annual Meeting—Rocky Mount, December 2-4.

Bahamas Medical Conference—Nassau, December 1-15.

American College of Chest Physicians, Postgraduate Courses—Nashville, Tennessee, January 14-18; Fort Lauderdale, Florida, March 4-14, 1957.

Southern Branch, American Public Health Association—Asheville, May 29-31, 1957.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

The following grants have been awarded to members of the faculty of the University of North Carolina School of Medicine: Dr. James Norman Allen—\$9,200; for a study entitled "Quantitative Histochemistry of Human Gliomas" by the Multiple Sclerosis Society for the period July 1, 1956 to June 30, 1957. Dr. Ernest Craig—\$10,230; for support of research on the production of ventricular arrhythmias by respiratory acidosis and alkalosis by Life Insurance Medical Research Fund for the period July 1, 1956 to June 30, 1958. Dr. Thomas W. Farmer—\$21,106; training grant by the U. S. Public Health Service for the period July 1, 1956 to December 31, 1957. Dr. Carl W. Gottschalk—\$7,628.50; for a study entitled "A Mammalian Micro-puncture Study of Some of the Physical Factors in Kidney Function" by the American Heart Association for the period July 1, 1956 to June 30, 1957. Dr. Carl W. Gottschalk—\$12,494; for kidney research by the U. S. Public Health Service for the period August 1, 1956 to July 31, 1957. Dr. Louis G. Welt—\$11,880; a metabolism training grant by the U. S. Public Health Service for the period July 1, 1956 to June 30, 1957. Dr. Judson J. Van Wyk was awarded a U. S. Public Health Service grant of \$10,000 for research on the "Physiologic Role of Certain Adrenal Steroids in Children."

Dr. Isaac M. Taylor, assistant professor of medicine, was one of the physicians who treated the survivors of the antarctic plane crash recently near McMurdo Sound.

Dr. Taylor is on leave from the University. He left last year for the base, where he will be stationed for approximately 15 months. He is at McMurdo Sound, about 400 miles west of Little America.

Dr. Taylor, a reserve officer in the Navy, volunteered to take part in "Operation Deepfreeze," which will be held in conjunction with the International Geophysical Year (1957-1958) and will

involve several years of exploration and scientific research study in Antarctica.

Dr. Taylor is a native of Morganton. He graduated from the University of North Carolina in 1942 and received his medical degree from Harvard University in 1945.

He joined the staff of the University of North Carolina School of Medicine in 1952. His wife and children make their home in Chapel Hill.

* * *

Dr. George C. Ham, professor and chairman of the Department of Psychiatry, recently attended a meeting of the Selection Committee for Senior Research Fellowships of the National Institutes of Health in Washington, D. C.

The committee reviewed requests from throughout the United States and assisted the Department of Health, Education and Welfare in awarding Senior Research Fellowships. These fellowships will support investigators between the completion of training and eligibility for permanent higher academic appointments.

The purpose of the Senior Research Fellowship Program is to foster additional research in the pre-clinical sciences of anatomy, physiology, biochemistry, microbiology, pharmacology, pathology, biophysics, genetics and behavioral sciences in the medical, dental and public health schools.

* * *

The second academic year of televising "Project Health" began Friday, October 26 at 9 p.m. when WUNC-TV, Channel Four, telecast a program entitled "Dentistry for Children" from the University of North Carolina School of Dentistry.

The hour program will be telecast every other Friday night at the same time, 9 to 10 p.m., over the University of North Carolina Television Station, WUNC-TV, Channel Four.

The series of programs, which will run through May 24, is presented by the UNC Division of Health Affairs, working in cooperation with the UNC Television Council and WUNC-TV.

* * *

The September issue of the *British Medical Journal*, which is a special number on medical education, contains a description of some aspects of the School of Medicine of the University of North Carolina. In an article entitled "The Role of Psychiatry in Medical Education," Dr. John A. Ewing compares and contrasts the teaching of psychiatry in Britain and the United States. Dr. Ewing obtained his medical education in Scotland and proceeded to special study of psychiatry there and in England before coming to this country five years ago. He became a faculty member in the Department of Psychiatry in Chapel Hill in 1954.

In his article, Dr. Ewing describes the modern movement toward reintegration of psychiatry with medicine as a whole. He states his belief that this process in the United States is well in advance of many current British practices.

Dr. Charles L. Johnston, Jr. has joined the staff of the Department of Physiology of the University of North Carolina School of Medicine. He will be a research associate working with Dr. John Howard Ferguson, professor of physiology.

Dr. Johnston graduated from UNC in 1947 and received a master's degree here in 1949. He graduated from the University of Pennsylvania with an M.D. in 1953.

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

Dr. Harold D. Green, professor of physiology and pharmacology, delivered the fortieth Mellon Lecture before the Society for Biological Research of the School of Medicine, University of Pittsburgh, on November 6. Funds for the lectureship were originally provided by the late R. B. Mellon, but more recently by the Sarah Mellon Scaife and Richard King Mellon Foundations. The title of Dr. Green's address was "Autonomic Control of the Circulation in the Major Vascular Beds."

* * *

At the October meeting of the Tulsa (Oklahoma) county medical society, Dr. I. Meschan, professor of radiology, delivered a paper "The objective approach to radiologic analysis of diseases of the chest."

* * *

At the annual clinical session of the American College of Surgeons, meeting in San Francisco, Dr. H. H. Bradshaw, professor of surgery, was elected secretary of the College for the third successive year. He was also elected to serve as chairman of the nominating committee for the board of governors for the coming year.

At the same meeting Dr. Frank R. Lock, professor of obstetrics and gynecology, was elected a governor of the American College.

* * *

The annual Herbert M. Vann Memorial Lecture was delivered by Dr. John Franklin Huber, professor and chairman of the Department of Anatomy, Temple University School of Medicine, on November 5. The lectureship is sponsored by the Phi Rho Sigma fraternity in honor of Dr. Herbert M. Vann, professor of anatomy at Bowman Gray until his death in 1951.

* * *

Dr. Josef Warkany, internationally known pediatrician of the Children's Hospital, Cincinnati, spoke before the Bowman Gray Medical Society on November 12. The title of his paper was "Induction of Congenital Malformations: Experiments and Interpretations." Born and educated in Vienna, he came to the United States in 1932 as a fellow at the Children's Hospital. He has been the recipient of the Mead Johnson and the Borden Award.

* * *

At 7:30 p.m. on December 3, the Bowman Gray Medical Society will present a "Pain Symposium."

Neuropsychiatric aspects of pain will be discussed by Dr. Richard L. Masland, professor of psychiatry and neurology. Dr. J. Maxwell Little, professor of pharmacology, will discuss the pharmacology of pain. "Visceral pain" will be presented by Dr. Richard T. Myers, assistant professor of surgery. Dr. Courtland H. Davis, assistant professor of neurological surgery, will present "Neurosurgical Aspects of Pain." The basic principles of nerve block in the management of pain will be discussed by Dr. Leroy Crandell, assistant professor of anesthesiology.

NEWS NOTES FROM THE DUKE UNIVERSITY SCHOOL OF MEDICINE

The North Carolina Orthopaedic Association held its annual meeting at Duke University on October 19 and 20. Dr. E. I. Bugg, Jr., of Durham is president of the Association and Dr. J. Leonard Goldner is secretary-treasurer.

The visiting doctors were welcomed by Duke Medical School Dean W. C. Davison and Dr. Deryl Hart, chairman of the Department of Surgery.

The program was given by the following faculty members of the School of Medicine: Drs. Guy Odum, Nicholas Georgiade, C. Ronald Stephen, W. C. Sealy, Barnes Woodhall, Keith Grimson, W. W. Shingleton, E. P. Alvey, Norman Conant, C. L. Persons, James Wyngaarden, J. Leonard Goldner, and J. E. Markee. Also participating were Dr. Robert Brashear of Memorial Hospital, Chapel Hill; Dr. John Baluss, Fayetteville; Bert R. Titus, director of the Duke Brace Shop; and Cornelia Watson, director of occupational therapy, Grace Horton of the Physical Therapy Division, and Annabel Stanford of the Social Service Division, all of Duke.

On October 29 some 100 doctors from over the nation embarked from New York on a postgraduate medical cruise held under the sponsorship of the Duke University School of Medicine. The doctors and their families arrived in Lisbon, Portugal on November 6. Their itinerary included stops at Barcelona, Spain; Patras, Greece, Palermo, Sicily, and Naples and Venice in Italy. After debarking at Rome on November 16, the doctors returned individually to the United States.

The ship-board medical program consisted of daily lectures by Duke faculty members, round table discussions, and clinicopathologic conferences. These sessions constitute 25 of the 150 hours of postgraduate study required of physicians every three years.

Dr. William M. Nicholson, director of postgraduate education in the Duke Medical School, was in charge of the cruise and a member of the sea-going faculty. Also serving on the faculty were Dean W. C. Davison of the Medical School; Dr. Lenox D. Baker, professor of orthopaedic surgery; Dr. Leslie B. Hohman, professor of psychiatry; and Dr. Edward S. Orgain, professor of medicine.

Dr. Leslie B. Hohman, professor of psychiatry in the Duke University School of Medicine, has been named president-elect of the American Psychopathological Association.

Formerly vice president of the Association, Dr. Hohman will succeed Dr. Howard S. Liddell of Cornell University as president in 1957. Elections were held during the organization's annual meeting in New York City.

The American Psychopathological Association is composed of leading psychiatrists throughout the United States who are active in research.

Dr. Hohman is a past president of the National Academy of Cerebral Palsy. Last week he was re-elected president of the North Carolina Society for Crippled Children and Adults.

Nationally known for his writings in the field of child training, family life and mental hygiene, Dr. Hohman is the author of a book, "As the Twig Is Bent," and many articles in scientific journals. He is also a contributor to the *Ladies' Home Journal*, with articles on psychiatric problems which arise in the lives of normal families.

* * *

Duke University medical students got a first hand look at the latest methods of mass casualty care during a special demonstration at Fort Bragg recently.

Involving doctors and equipment of the 82nd Airborne Division, the 15th Field Hospital and the Fort Bragg Medical Group, the demonstration was part of the Medical Education for National Defense (MEND) program.

Duke is one of 25 medical schools affiliated with MEND, which was set up in 1953 to prepare physicians to serve more effectively in times of disaster or war.

* * *

Dr. Paul M. Gross, vice president and dean of Duke University, recently announced the names of 31 new faculty members recently appointed at Duke. Included were the following additions to the faculty of the School of Medicine:

Drs. William D. deGravelles, Jr., visiting assistant professor of rehabilitation; John M. Rhoads, associate professor of psychiatry; Norman Kirschner, associate in biochemistry; Charles L. Rummel, assistant professor of radiology; John Coughlin, associate in anesthesiology; Aaron P. Sanders, associate in radiology and director of the Isotope Laboratory.

NORTH CAROLINA SURGICAL ASSOCIATION

The North Carolina Surgical Association held its annual fall meeting at The Manor, in Asheville, N. C., on September 27, 28, and 29.

The program consisted of papers by Dr. Asa R. Parham on "Applied Surgical Physiology of Adrenal"; by Dr. George Plonk on "Applied Surgical Physiology of Kidney"; by Dr. Joshua Camblos on "Applied Surgical Physiology of the Thyroid"; by Dr. Joe Van Hoy on "Applied Surgical

Physiology of the Pituitary"; by Dr. Richard Meyers on "Fluid and Electrolyte Balance in Surgical Patients"; by Dr. John Brabson on "Postoperative Nerve Palsies"; by Dr. Will Sealy on "Indication and Care of Tracheotomy", and brief discussions by Dr. Horace Baker, Dr. William Farmer and Dr. George Wadsworth on "Little Things Learned in Practice."

Officers elected were Dr. Alexander Webb, Raleigh, president; Dr. Howard Starling, Winston-Salem, president-elect; Dr. John Brabson, Charlotte, vice president; and Dr. Alfred Hamilton, Raleigh, secretary-treasurer.

NORTH CAROLINA SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

Bridge players in 10 North Carolina cities gave \$1,994.50 during the past year to help rehabilitate crippled children, it was announced recently by Dr. Leslie B. Hohman, of the North Carolina Society for Crippled Children and Adults, Inc.

Bridge parties were held, aside from the regular Easter Seal Sale campaign, with proceeds going to aid the crippled.

The North Carolina Society for Crippled Children and Adults has a year-around program of therapy and other help for crippled people. Among these are physical therapy and speech clinics, summer camps for both white and colored children, as well as aid and equipment of various kinds for crippled people.

NORTH CAROLINA HEART ASSOCIATION

Among the nationally known heart specialists and research scientists meeting under the auspices of the American Heart Association in Cincinnati last month were several North Carolinians. Presenting papers at the annual scientific sessions were Drs. Harold D. Green and Adam E. Dennison of the Bowman Gray School of Medicine; Drs. James Woods, Kerr White, and Dewey Dorsett of the University of North Carolina School of Medicine; and Drs. Hershel V. Murdaugh, Stuart Bonduant, John M. Wallace, John B. Hickam, and Herbert O. Sieker of Duke Medical School. Dr. Eugene Stead of Duke took part in a panel discussion of congestive heart failure.

Chairman of a panel on fund raising and public relations as well as the keynote speaker at the annual meeting of the American Heart Assembly was Dr. John G. Smith of Rocky Mount, former president of the North Carolina Heart Association. The assembly is the governing body of the Heart Associations, which choose delegates in proportion to state population. Delegates from North Carolina were Dr. Edward P. Benbow of Greensboro, president of the North Carolina Heart Association; Dr. John B. Hickam of Duke, president-elect; Colonel Lawrence L. Simpson of Matt-

hews, vice president; Dr. E. Harvey Estes, Jr., of Duke, and Jerome T. Collins of Greensboro, members of the Executive Committee; George K. Cutter of Charlotte, member of the Board of Directors; Dr. Edwin P. Hiatt of UNC, president of the Durham-Orange Heart Association; and Dr. Eugene A. Stead, Jr., of Duke.

* * *

The North Carolina Heart Association and its chapters will receive applications for research grants from now until January 31, 1957, according to Dr. Carl Gottschalk, chairman of the Association's Research Committee. Those interested in obtaining financial support for research in the cardiovascular field may request applications from state Heart headquarters at Miller Hall in Chapel Hill.

Dr. Gottschalk said he could not estimate how much money would be available for meeting new applications. "That will depend on the success of the Heart Fund Drive next February," he commented. Gifts toward research for heart disease may be sent to the North Carolina Heart Association or to local chapters at any time during the year.

NORTH CAROLINA STATE BOARD OF HEALTH

Health and safety leaders in the Tarheel state have been warned to take active measures to combat accidental deaths from fires and burns which, it is feared, may reach epidemic proportions during the remaining months of 1956.

In a message to all local public health officials in North Carolina, Dr. Charles M. Cameron, Jr., accident epidemiologist of the North Carolina State Board of Health, cited fires and burns as the leading non-motor vehicle cause of accidental death, and pointed out the marked increase in these deaths which accompanies the winter months each year.

Dr. Cameron revealed that a broad program of public information to advise residents of possible home hazards which may result in fires has been planned and that newspapers, radio and television stations, and other communications media are being asked to cooperate.

FIRST DISTRICT MEDICAL SOCIETY

The First District Medical Society held its annual medical symposium at Nags Head on August 29. The following program was presented: "Pitfalls in Recognition of Cancer"—Dr. William G. Anlyan, Duke University School of Medicine; "Recent Advances in Our Knowledge of Cardiovascular Disease"—Dr. James Warren, Duke; "Psychological Factors in Cardiovascular Diseases"—Dr. George C. Ham, professor of psychiatry, University of North Carolina School of Medicine.

EDGECOMBE-NASH MEDICAL SOCIETY

The Edgecombe-Nash Medical Society held its regular monthly meeting in Rocky Mount on October 10. No scientific program was planned, so that the meeting could be devoted entirely to business matters.

ROBESON COUNTY MEDICAL SOCIETY

The Robeson County Medical Society met October 1, 1956, at the Lorraine Hotel, Lumberton. Dr. David Cayer, Bowman Gray School of Medicine, spoke to the Society on "The Diagnosis of Jaundice."

The Society will sponsor the A.M.A. essay contest in our County schools again this year. Prizes of \$25, \$15, and \$10 will be given for the best essays.

FORSYTH COUNTY MEDICAL SOCIETY

The monthly meeting of the Forsyth County Medical Society was held in conjunction with the Winston-Salem Heart Symposium on October 12 at the Robert E. Lee Hotel in Winston-Salem. Dr. Charles C. Wolferth, emeritus professor of medicine, University of Pennsylvania School of Medicine, Philadelphia, was the speaker.

MEDICAL COLLEGE OF SOUTH CAROLINA

The Medical College of South Carolina's Postgraduate Seminar and Founders' Day observance were held in Charleston on October 30 and 31 and November 1. Participating in the seminar, which dealt with various aspects of medicine and surgery, were faculty members from the Medical College and speakers from neighboring states.

The Founders' Day Seminar was also an interim meeting of the South Carolina Chapter of the Academy of General Practice. Attending physicians were guests of the Medical College at the alumni luncheon on Founders' Day.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

Dr. Thomas M. Rivers of New York City, formerly vice president of the Rockefeller Institute for Medical Research, has been appointed medical director of the National Foundation for Infantile Paralysis, it has been announced by Basil O'Connor, president of the March of Dimes organization. He succeeds Dr. Hart E. Van Riper, who left the National Foundation on October 31 to become medical director of Geigy Pharmaceuticals of Ardsley, New York.

Dr. Rivers, who has been closer scientifically to the development and testing of the Salk vaccine than anyone except Dr. Jonas E. Salk himself, took over his new post on November 1, exactly one year after joining the National Foundation's professional staff as assistant to Mr. O'Connor.

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

The thirty-fifth annual scientific and clinical session of the American Congress of Physical Medicine and Rehabilitation will be held September 8-13, 1957, inclusive, at Hotel Statler, Los Angeles.

Scientific and clinical sessions will be given September 9-13. All sessions will be open to members of the medical profession in good standing with the American Medical Association.

Full information may be obtained by writing to the Executive Secretary, Dorothea C. Augustin, American Congress of Physical Medicine and Rehabilitation, 30 North Michigan Avenue, Chicago 2, Illinois.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The Council on Postgraduate Medical Education of the American College of Chest Physicians will present the following postgraduate courses on Diseases of the Chest during the period January-April, 1957:

Vanderbilt University, Nashville, Tennessee—January 14-18.

Mark Hopkins Hotel, San Francisco, California—February 25-March 1.

Bellevue-Stratford Hotel, Philadelphia, Pennsylvania—April 1-5.

Tuition for each course is \$75. The most recent advances in the diagnosis and treatment of chest diseases—medical and surgical—will be presented.

Further information may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

AMERICAN ACADEMY OF PHYSICAL MEDICINE AND REHABILITATION

The American Academy of Physical Medicine and Rehabilitation has announced the election of the following officers for 1956-1957:

Murray B. Ferderber, Pittsburgh, President; George D. Wilson, M.D., Asheville, N. C., President-Elect; Louis B. Newman, M.D., Chicago, Vice President; Max K. Newman, M.D., Detroit, Secretary-Treasurer; Dorothea C. Augustin, Chicago, Assistant Secretary-Treasurer.

The President's Academy Award was presented to Doctor Edward L. Compere in recognition of his outstanding work in restoring people to health and his leadership in developing the Liberty Mutual Rehabilitation Center of Chicago.

AMERICAN MEDICAL WRITERS' ASSOCIATION

Dr. Morris Fishbein of Chicago, internationally known as medical editor, has been honored as recipient of the 1956 Distinguished Service Award given by the American Medical Writers' Association. Dr. Fishbein is medical editor of *Excerpt Medica*, and for many years was editor of the *Journal of the American Medical Association*.

MEDICLINICS

Mediclinics second annual postgraduate refresher course will be held in Fort Lauderdale, Florida, March 4-14, 1957.

The Florida Academy of General Practice is the local sponsor of the course. The American Academy of General Practice has certified this course for 32 hours of formal postgraduate study—Category I—for those Academy members in attendance.

The course consists of 32 hours of lectures and panels conducted by a faculty well able to present the varied subjects in the several fields of medicine.

The program also lists seven luncheon meetings in addition to the 32 hours of lectures and panels. Attendance at the luncheons is optional and will be limited to 40 participants in order to stimulate informal discussion of the subject. The cost of each luncheon is \$2.50 per plate.

Registration will be limited to 300. Inasmuch as this course occurs at the height of the tourist season, we have been strongly urged by the Fort Lauderdale Chamber of Commerce to adhere to this limit. Reservations should be made well in advance.

The tuition fee for the course is \$50.00 payable in advance. Checks should be made payable to Mediclinics and mailed to Mediclinics of Minnesota, 516 Medical Arts Building, Minneapolis, Minnesota.

MISSISSIPPI VALLEY MEDICAL SOCIETY

Dr. Paul Dudley White of Boston, internationally known cardiologist, has been honored as recipient of the 1956 Honor Award given by the Mississippi Valley Medical Society. The honor is given from time to time to non-members of the Society "who have made distinguished contributions to clinical medicine."

Dr. Norris J. Heckel of Chicago, nationally known urologist, received the 1956 Distinguished Service Award given by the Mississippi Valley Medical Society. The Distinguished Service Award is given annually to a member of the Society "who has rendered unusual and distinguished service to the medical profession."

The awards, comprising plaques and gold medals, were presented to Dr. White and Dr. Heckel by the president of the Society, Dr. Frank R. Peterson, formerly professor and head of the Department of Surgery, State University of Iowa, at the banquet held during the twenty-first annual meeting of the organization in Chicago, September 27.

PAN AMERICAN SANITARY BUREAU

In a dramatic announcement to the ninth meeting of the Directing Council of the Pan American Sanitary Organization, United States Representative Dr. Henry van Zile Hyde today stated that the United States Government will make a special

contribution of \$1,500,000 to the Pan American Sanitary Bureau for expanded assistance in 1957 in the malaria eradication campaign which governments in this hemisphere are conducting with PASB assistance.

Speaking amid enthusiastic applause, Dr. Hyde, who is chief of the Division of International Health in the U. S. Department of Health, Education and Welfare, emphasized that this contribution would be in addition to the regular annual quota payments of the U. S. and other Member Governments to the PASB budget.

Dr. Carlos Soza Barillas, Minister of Public Health and Welfare for Guatemala, was elected president of the Council; Dr. Daniel Orellana, director of Public Health in Venezuela, first vice president; and Dr. Felix Hurtado, Ambassador in charge of International Health Affairs for Cuba, second vice president.

The Directing Council met simultaneously with the World Health Organization's Regional Committee for the Americas.

INTERNATIONAL CANCER CYTOLOGY CONGRESS

A vast new program for early detection of cancer of the cervix was inaugurated at the International Cancer Cytology Congress in Chicago, October 8-13, where key representatives of professional pathology societies launched a plan to increase the cytologic testing services of pathology laboratories throughout the country.

Results of a recently completed survey were announced, revealing that at least half of the membership of the College of American Pathologists, or 1,229 pathologists, are already offering such services. Together it was concluded that members of the College had the year before performed a combined load of about 2,000,000 cases. Every region and state in the country was well represented.

In a keynote address, Dr. W. A. D. Anderson, of Miami, president of the College, stressed the importance of close liaison between the local physician and the pathologist in an area, in securing cytologic smears and examining them for suspicious cells.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Establishment of a Center for Aging Research in the National Institutes of Health has been announced by Dr. Leroy E. Burney, Surgeon General of the Public Health Service, Department of Health, Education, and Welfare.

Dr. G. Halsey Hunt, at present associate chief of the Service's Bureau of Medical Services, has been appointed director of the Center. He will assume his new duties on November 19.

Creation of a Center for Aging Research in the Public Health Service is in line with the program

developed by the Federal Government through the Federal Council on Aging and the member departments and agencies to coordinate all activities associated with the problem of aging. The new Center will more effectively coordinate research activities in aging and will stimulate the additional research that is urgently needed to obtain solutions to the serious problems presented by the aging of the population.

Dr. Hunt is a member of the Board of Governors of the American College of Surgeons, and is first vice president of the Board of Trustees of Medical Service of the District of Columbia.

UNITED STATES ATOMIC ENERGY COMMISSION

Award of forty-eight unclassified life science research contracts in the fields of medicine, biology, biophysics, radiation instrumentation, and special training, was announced recently by the U. S. Atomic Energy Commission. The contracts were awarded to universities and private institutions as part of the AEC's continuing policy of assisting and fostering research and development in fields related to atomic energy as specified in the Atomic Energy Act of 1954, and as amended in 1956.

One of the contracts (amounting to \$17,394), was awarded to E. I. Gray of Duke University, for a radiation biology course for high school teachers.

DEPARTMENT OF THE ARMY

Major General Paul I Robinson has been appointed executive director of the new dependents' civilian medical care program, according to the Army Surgeon General.

General Robinson will head a program established to implement a bill enacted by Congress on June 7 providing for medical care in civilian facilities to dependents of active duty military personnel of the "uniformed services."

VETERANS ADMINISTRATION

Dr. A. B. C. Knudson, director of the physical medicine and rehabilitation service of the Veterans Administration in Central Office at Washington, D. C., is the first VA physiatrist (physician specializing in rehabilitation) to head the American Congress of Physical Medicine and Rehabilitation.

Dr. Knudson assumed the duties of president at the recent meeting of the Congress in Atlantic City. He was president-elect during the preceding year.

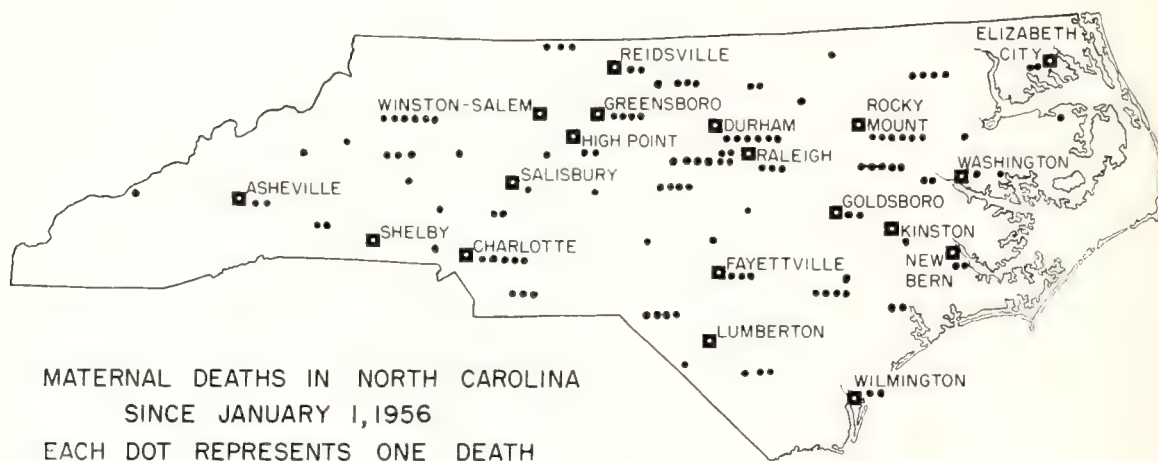
H. Max Houtchens, Ph.D., of Washington, D. C., has been appointed chief of the Veterans Administration clinical psychology division in central office at Washington, Dr. William S. Middleton, Chief Medical Director, has announced.

Dr. Houtchens succeeds H. M. Hildreth, Ph.D., who has accepted an appointment with Public Health Service.

(Bulletin Board continued on page 538)

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The Month in Washington

In addition to helping states make monthly public assistance payments to certain indigent persons, the federal government for a number of years also has contributed to the cost of their medical care. Because the grants formula is somewhat complicated, and the amount of medical care varies with the states, this U. S. contribution cannot be fixed definitely. It is estimated at about 90 million dollars a year.

About a third of the states now deposit these federal grants — which must be matched 50-50—in a separate fund, from which the medical care costs are paid directly to the vendors, such as physicians, dentists, hospitals, nursing homes, and druggists. The remaining two-thirds include medical care costs in monthly checks to the indigent, and expect these people to pay their own medical bills.

But beginning next July 1, this U. S.-state medical care arrangement is going to be drastically altered.

For one thing, the U. S. will increase its payments from the current \$90 million a year to between \$200 million and \$300 million. For another, *all* medical care money under the new program will be put into a separate fund, from which the indigents' medical bills will be paid, in one way or another, by the state itself.

It is true that in some states the new program will not have much effect. This will be the case with those states that already have a substantial medical care program and see no reason for increasing it and with those unable to raise the matching money.

But the amount of money potentially available to each state is significant, and in most states the change-over from the old to the new systems will have an important effect on physicians and other vendors of medical care. For example, eight states will have "new" medical care funds in excess of 10 million dollars, if they put up half the money. California's potential fund is \$27 million and New York's and Texas' more than \$18 million each.

Before state welfare directors start operating under the new program they will have to decide (a) whether they will require doctors to agree to a fee schedule, if one is

not already in operation in their indigent care program, and (b) how the doctors will be reimbursed (whether through their societies or other mechanisms, or directly by the government). Some state welfare officials have already approached state medical societies to talk over the situation.

(U.S. contributes to indigents in only four categories—the aged, dependent children, the blind and the disabled. For their medical care, it will offer states \$3 per month for each adult and \$1.50 for each child, money which the state must match. It is out of these funds that payments will be made for medical care).

NOTES

Because most applicants did not supply enough information, the council in charge of grants for medical research facilities approved only a handful of projects at its first meeting. Although \$30 million was available, only \$764,159 was allocated. Money went to seven institutions. However, the expectation is that the fund will be just about exhausted at the December meeting of the council, as more than 250 hospitals, schools, and laboratories have asked for money.

* * *

First head of the new National Library of Medicine is the man who steered the Armed Forces Medical Library through the last seven troubled years—Col. Frank B. Rogers. He is on loan to PHS, which is in charge of the new institution to be built up around AFML.

Hearings will be held probably in December by the House Interstate and Foreign Commerce committee on federal aid to medical education. The expert panel system will be used, instead of lone witnesses. Currently the committee staff is analyzing information received in response to questionnaires sent out to about 60 organizations interested in medical education.

* * *

A six-man advisory committee, named by Secretary Folsom, is attempting to work up suggestions that will help hospitals improve care and reduce costs. Some possibilities: central cafeterias for ambulatory patients, light housekeeping work done by some patients themselves.

* * *

Regional Small Business Administration offices now are taking applications for loans

Application

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Medical Society of the State of North Carolina
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May 5, 6, 7, 8, 1957

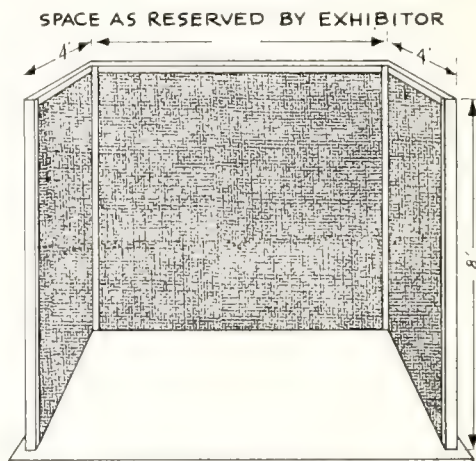
Fill Out and Mail to:

EVERETT I. BUGG, M.D., Chairman

Committee on Scientific Exhibits
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**(Applications for space should be
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Dimensions and structure of Medical Society
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are shown in accompanying illustration.



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4. Give approximate amount of back wall space needed. (Included in total space is two side walls of four feet in depth) _____
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8. Address _____ (Street & No. _____) (City) _____
 (a) First Associate
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The Medical Society of the State of North Carolina will provide without cost to the exhibitor the following: Exhibit space, sign for booth and current; provided all items are approved in advance by the committee.

Cost of transporting exhibits to and from the meeting must be borne by the individual exhibitor as well as costs of cards, signs, etc., which are a part of the exhibit.

View boxes, furniture, decorations, etc., may be rented, if desired, by applying directly to Shepard Display Company, 16 Yonge St., S.E., Atlanta, Ga., who supply equipment for the annual Medical Society of the State of North Carolina meeting.

to three types of health facilities—hospitals, nursing homes, and medical and dental laboratories. Institutions must be “small” and must be run for private profit.

* * *

To aid Defense in setting up fee schedules for military dependents using private physicians and facilities, state medical societies in cooperation with the American Medical Association have been asked to supply data on prevailing medical care charges.

* * *

While Defense Department officials were putting the finishing touches on regulations to carry out the military dependents medical care program, the State Department was working on its own version of a program for furnishing care to about 13,500 dependents of Foreign Service personnel stationed overseas. In most instances, medical and hospital care (with a \$35 deductible clause) will be supplied in U. S. military installations.

* * *

New chief of the Public Health Service Communicable Disease Center at Atlanta, Georgia, is Dr. Robert J. Anderson, a career PHS officer who has been serving as assistant chief of the division of special health services.

BOOK REVIEWS

Practical Pediatric Dermatology, By Morris Leider, M.D. 433 pages, Price, \$10.50. St. Louis: The C. B. Mosby Company, 1956.

At last an up-to-date and informative textbook on pediatric dermatology has become available. The author successfully achieves a “practical exposition” of dermatologic problems in the young. Many of the rarely seen conditions are not covered, and this critical selection of material has without doubt enhanced the practical usefulness of the volume. A discussion of dietotherapy has been, for the most part, omitted; this fact will disappoint those who feel that foods *per se* are significantly related to cutaneous disease. However, many informed authorities now agree that foods are not nearly as important as formerly thought in the management of dermatologic problems.

The pictures in this book are excellent, and the explanatory captions are brief and refreshingly informative. One can learn much merely by studying the illustrations with their captions. An innovation is the blue-colored section on dermatologic topical preparations; this useful material is made even more practical by its ready availability.

It is felt that this book will prove extremely helpful to the busy general practitioner, who must necessarily make the fullest use of his reading time. Needless to say, the pediatrician and dermatologist will also find the volume of real practical value.

Horizons For Older People. By George Gleason. 137 pages. Price, \$2.95. New York: The Macmillan Company, 1956.

This little volume deals chiefly with the various types of organizations that have been formed to enrich the lives of the older members of our population. Most of the groups he describes were sponsored by churches. Certainly it is an excellent way for our churches and church members to prove that they believe in the brotherhood of man. The eight chapters of the book describe many of the groups now functioning, and give practical suggestions for forming such groups.

A valuable feature of the book is a list of some post-retirement occupations, both paid and volunteer.

The fact that Dr. Gleason was himself born in 1875, and that he was awarded a Ph.D. degree when he was 62 entitles him to speak with authority about the needs and the capabilities of the senior citizens. His book should prove quite helpful to churches, social workers, and others interested in providing older people, especially those who have been forced to retire from active work, with opportunities to meet with others who also need congenial companionship.

The Medical Significance of Anxiety. By Richard L. Jenkins, M.D. Price, \$1.00. Washington, D. C.: The Biological Sciences Foundation, Ltd., 1955.

This booklet sums up very well what is known about anxiety, and gives some good advice about its treatment. It seems to the reviewer that the order of the chapters should be changed so that the third chapter, on “The Nature of Anxiety” would precede Chapter 1, on “The Need for Control of Anxiety,” and Chapter 2, on “The Control of Anxiety in Medical Practice.”

Books Received

Treatment of Heart Disease. By Harry Gross, M.D., and Abraham Jezer, M.D., 549 pages. Price, \$13.00. Philadelphia and London: W. B. Saunders Company, 1956.

Chronic Illness in the United States, Vol. II. Care of the Long Term Patient. By the Commission on Chronic Illness. 606 pages. Price, \$8.50. Cambridge, Massachusetts. Harvard University Press (A Commonwealth Fund Book), 1956.

In Memoriam

JOHN B. WRIGHT, M.D.

Beginning in 1899 Dr. John Bryan Wright embarked on a medical career which gained for him a host of friends throughout our state, and won for him the profound respect of his colleagues. His was a long and distinguished career of service, not only to the medical profession, but to his home community and the state.

Dr. Wright was born in Sampson County 82 years ago, and had a full and productive life until his final illness, which took him from us on September 29, 1956. He was a graduate of the University of North Carolina and the Medical College of Virginia. After graduation he did general practice at Granite Falls and in 1913 came to Raleigh as a pioneer in eye, ear, nose, and throat surgery. For a number of years he was a leader in this specialized type of work, and for a long period was the only surgeon between Baltimore and Atlanta to do bronchoscopy. Dr. Wright participated in the organization of, and helped in the operation of tonsil clinics throughout North Carolina, and gave of his time, energy, and skill in bringing much needed medical service, without compensation, to the indigent school children throughout our state.

Dr. Wright took active interest in professional affairs and as such was president of the Wake County Medical Society and later was president of the Medical Society of the State of North Carolina. He was a member of the 50-Year Club of the Medical Society and a fellow of the American College of Surgeons.

Dr. Wright was active in the Rotary Club of Raleigh and served on the Board of Directors of the Raleigh Building and Loan Association. He was a man of deep religious convictions and was an elder of the First Presbyterian Church and later of the Myatt Presbyterian Church. For more than 40 years he taught a Sunday School class, which was always enthusiastically attended. His wife, the late Mrs. Violet Rhodes Wright, died in February, 1945. He was a devoted husband and father. Surviving him are three sons: John B. Wright, Jr., of Farmville, Dr. James R. Wright and Dr. Isaac C. Wright, both of Raleigh; three daughters, Mrs. E. B. Crow of Wilson, Mrs. Ben Kilgore of Franklin, Kentucky, and Mrs. Charles F. Williams of Raleigh; a brother, Isaac C. Wright of Wilmington; two sisters, Mrs. George Thomas of Maplewood, New Jersey, and Mrs. H. B. Smith of New Bern; 13 grandchildren and one great-grandchild.

During the years of his activity Dr. Wright had a profound influence on the younger men as they came to the community. He had a continued influence on his contemporaries. He set for himself high professional standards which were an example for all his colleagues. He demonstrated a

great capacity for work, a devotion to his professional responsibility, and a love for all his patients, which in turn brought him love and affection. We have lost a friend and a great man. Our deepest sympathy is extended to all who loved him.

George W. Paschal, Jr., M.D.
Executive Council of the Medical
Society of the State of
North Carolina

BULLETIN BOARD

(CONTINUED FROM PAGE 534)

VETERANS ADMINISTRATION

Thousands of World War II and post-Korea veterans who lost their 5-year term GI insurance since July 23, 1953 because they had failed to pay either or both of the last two monthly premiums will be given an opportunity to reinstate their policies under a new law just signed by the President.

VA said it is searching its records for these cases, so it soon may send each former policyholder a reinstatement application with instructions on how to proceed.

The agency "strongly" requested the affected veterans not to write or otherwise make inquiries about their cases for at least a month so as not to delay the checking process to the detriment of all veterans involved.

The law which permits these veterans to reinstate such term policies is the Survivor Benefits Act, signed by the President August 1, 1956.

Health Insurance Coverage In U. S. At All-Time High

Benefit payments designed to help people pay hospital and doctor bills are running 20 per cent higher this year than last, the Health Insurance Council announced recently in issuing the findings of its tenth annual survey of the extent of voluntary health insurance coverage in the United States. As of July 31, 1956, the Council estimates that some 110 million persons were covered by hospital insurance; 94 million had surgical protection; 58 million had regular medical expense coverage, and seven million were insured against major hospital and medical expenses.

Management of Pyelonephritis

Pyelonephritis, the commonest of all renal diseases, is due to bacterial infection of the kidney. In infections of the urinary tract, the kidney must always be assumed to be involved until proved otherwise, since there is often no reliable method of differentiating infection of the lower and upper urinary tract. However, urethral, prostatic and rarely bladder infections may occur without renal involvement. — Derow, H. A.: Management of Pyelonephritis, *New England J. Med.* 255:337 (Aug. 16) 1956.

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NORTH CAROLINA

Medical Journal



Vol. 17 No. 12
December, 1956

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Infections of the respiratory tract respond readily to

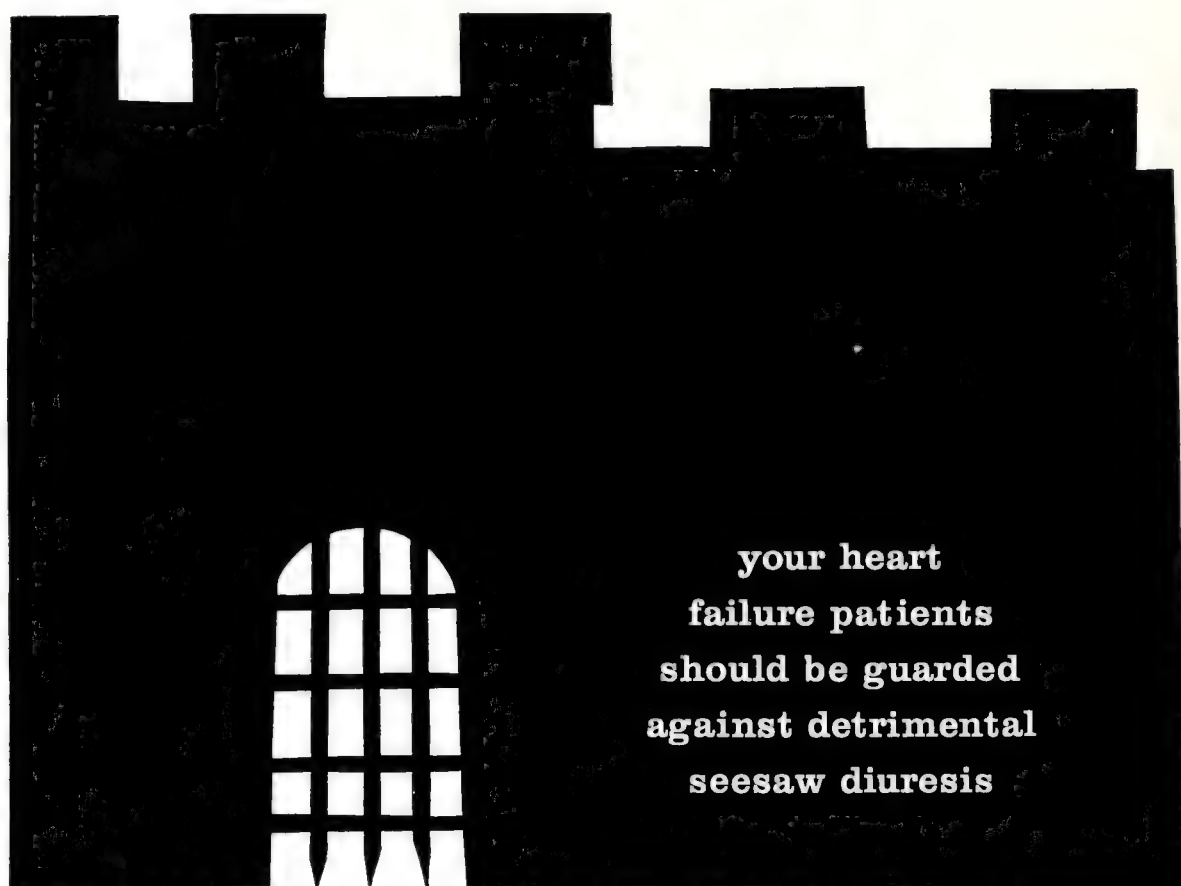
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VOLUME 17
NUMBER 12

DECEMBER, 1956

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NORTH CAROLINA MEDICAL JOURNAL

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VOLUME 17

DECEMBER, 1956

NUMBER 12

SYMPOSIUM ON SURGERY OF THE COLON AND RECTUM

Inflammatory Lesions of the Colon

R. W. POSTLETHWAIT, M.D.*

DURHAM

Of inflammatory lesions of the colon, ulcerative colitis is of greatest surgical interest. Accordingly, this discussion will be devoted largely to this lesion, although diverticulitis, will be noted briefly.

Diverticulitis

A number of reports concerning single-stage resection and primary anastomosis for diverticulitis have recently appeared. For the patient with acute diverticulitis, abscess or peritonitis, the multiple-stage operation remains necessary. One-stage resection has been recommended mainly during a quiescent interval between attacks of recurrent diverticulitis. Urinary symptoms during diverticulitis suggest impending perforation into the bladder, and after proper preparation resection may be done. Lesions in which carcinoma cannot be ruled out may also require resection. One-stage resection should be done only where adequate preparation can be carried out and the operative findings are such that resection and anastomosis can be done in conformity with established surgical principles. Judd and Mears⁽¹⁾ have recently reported 68 one-stage resections with only one death.

Description of Ulcerative Colitis

Ulcerative colitis is an acute and chronic disease of the colon and rectum, characterized by diarrhea, which is frequently bloody, cramping abdominal pain, rectal tenesmus, fever, anemia, and numerous complications. The onset may be abrupt or

insidious, and the course is usually one of remissions and exacerbations.

Ulcerative colitis may begin at any age, but is most common between 20 and 40 years. The sex incidence is about equal. Apparently there is no inherited susceptibility, and the disease is not epidemic, infective or transmissible. No immunity is known to develop.

Among the many possible causes of ulcerative colitis which have been suggested are infection, allergy, nutritional deficiency, lymphatic obstruction, lack of protective enzymes, proteolytic or mucolytic enzymes, alterations in ground substance, metabolic disorders, and neurogenic or psychogenic disturbances. The exact etiologic agent has not been established, however.

Pathology

Warren and Sommers⁽²⁾ have described the pathogenesis, based on 120 surgical and 60 autopsy specimens. Distribution of involvement in specimens which were complete were as follows: rectum 75 per cent, sigmoid 83 per cent, descending colon 83 per cent, transverse 80 per cent, ascending 72 per cent, cecum 61 per cent, and ileum 34 per cent.

Grossly, the mucosa is deep red or purple owing to hyperemia and congestion. The ulcers vary in number, size, shape, and extent; they may be small and punctate or broad and coalescent, with only a few patches of epithelium between. They are frequently narrow, longitudinal, gutter-like depression extending throughout most of the length of the colon, usually between the taeniae. Soft, edematous, polypoid nodules

Presented before the Section on Surgery, Medical Society of North Carolina, Pinehurst, May 1, 1956.

*From the Veterans Administration Hospital, Durham, North Carolina.

are formed by the remaining mucosa, and may overhang and conceal the ulcers. The walls of the colon are irregularly thickened. Although the ulcers may penetrate the muscular layers, the serosa is usually relatively unchanged. The regional nodes are enlarged. Microscopically, the mucosal and submucosal changes are most important. The ulcers tend to be multiple and shallow, and underneath is a heavy cellular infiltrate in extremely vascular granulation tissue. The vessels may show marked changes.

Diagnosis

The symptoms and signs of ulcerative colitis are well known and will not be described here. Proctoscopic examination will show a hyperemic, edematous, granular mucosa, which bleeds easily. Tiny ulcerations and, in fulminating cases, large ulcers may be present. The typical changes demonstrated by barium enema examination are loss of normal haustration, fine serrations, ulceration, rigidity and shortening of the colon, and pseudopolypoidosis. The differential diagnosis must exclude such diseases as bacillary dysentery, amebic dysentery, tuberculosis, and familial polyposis.

Medical Treatment

Medical therapy at the present consists of a low residue diet, sedatives, antispasmodics, vitamins, retention enemas, antibiotics, chemotherapy and, in selected cases, corticotropin or cortisone. With certain exceptions, proper medical management should be given an adequate trial.

Indications for Surgery

The indications for surgery in ulcerative colitis are well agreed upon by surgeons, but less so by gastroenterologists and internists. A major objection to surgery by the latter seems to be the mortality and morbidity of ileostomy, which have actually been greatly decreased in the past few years, as will be noted later.

Garlock and Lyons⁽³⁾ stated concisely and appropriately that "surgical therapy is indicated more for the early treatment of complications of ulcerative colitis than for the treatment of the early phases of the disease." The reported incidence of complications should therefore reflect the frequency with which surgery will be required. Kirsner, Palmer, Maimon and Ricketts⁽⁴⁾, in a group of 100 cases followed carefully, found that 33 patients had no

complications, 28 had one complication, 17 had two complications, and 22 had more than two complications. This would suggest that about 67 per cent of the patients need surgery, but surgical intervention is less frequent in the large clinics. Barger⁽⁵⁾ has stated that 5 to 10 per cent will come to surgery. Cattell and Sachs⁽⁶⁾ in a group of 630 patients found surgery necessary in 26 per cent. Other groups report surgery in from 5 to 40 per cent of the patients with ulcerative colitis.

Indications for Operation

The indications for operation may be urgent or elective.

The urgent indications for operation are: (1) acute fulminating disease; (2) hemorrhage; (3) acute perforation; (4) impending perforation; (5) obstruction; (6) carcinoma.

Acute fulminating ulcerative colitis

Acute fulminating ulcerative colitis is usually sudden in onset and progressive. Severe diarrhea, fever, and overwhelming toxemia characterize the course. Cattell and Sachs⁽⁶⁾ feel that if a favorable response to medical therapy does not occur within a few days, operation should be carried out. The use of ACTH and cortisone has resulted in at least temporary improvement in many of this group, although this treatment is not without inherent danger.

Ripstein⁽⁷⁾ feels that in the acute fulminating type of ulcerative colitis, the results of ileostomy alone will be uniformly poor, with a mortality as high as 60 per cent. These patients have severe loss of blood and protein from the diseased colon, and ileostomy adds the factor of further fluid and electrolyte loss. Also, infection arising in the colon is an important factor in the mortality. The logical treatment, therefore, is removal of the colon. He has carried out primary colectomy in 43 of these patients—all acutely toxic, with severe diarrhea and fever ranging from 103 to 105 F.—with only 2 postoperative deaths. He feels that primary resection is therefore the procedure of choice, as it removes the source of blood and protein loss, eliminates the focus of infection and toxic absorption, and forestalls the danger of perforation.

Hemorrhage

Severe hemorrhage from the colon may be the primary indication for operation, although this has not been frequent in the

reported series. Kirsner and his co-workers⁽⁴⁾ found hemorrhage as a serious complication in 12 per cent of their patients, and Lahey⁽⁸⁾ stated that hemorrhage was a frequent indication for operation in his series.

Perforation

Perforation may be subacute, with formation of a localized abscess, or the general peritoneal cavity may be infected. The latter is usually seen in the acute fulminating disease. The advent of corticotropin and cortisone for the treatment of ulcerative colitis has added the complication of clinically unsuspected perforation. Hayes and Kirsner⁽⁹⁾ had 2 cases of unsuspected perforation in 12 patients who received steroid therapy. Ripstein had 3 in a group of 6.

Table 1
Incidence of Perforation

	Per Cent
Kirsner and others ⁽⁴⁾	6.0
Bone and others ⁽¹⁰⁾	3.0
Dennis and Karlson ⁽¹¹⁾	3.7
Ripstein ^(7b)	8.4
Rogers, Borgen, and Black ⁽¹²⁾	6.0
Warren and Sommers ⁽²⁾	8.0

The reported incidence of perforation ranges from 3 to 8 per cent. The necessity for operation is obvious.

An interesting group of patients has what has been termed impending perforation. In these patients, signs of peritoneal irritation develop with increasing tenderness, rebound, and spasm. Ripstein⁽⁷⁾ has pointed out the diagnostic importance of a persistently dilated loop of colon demonstrated by x-ray, and considers impending perforation an urgent indication for operation.

Obstruction

The thickening and fibrosis of the bowel wall and shortening of the colon in ulcerative colitis suggest that obstruction would be a frequent complication.

Table 2
Incidence of Obstruction

	Per Cent
Cattell and Sachs ⁽⁶⁾	3.0
Kirsner and others ⁽⁴⁾	1.0
Warren and Sommers ⁽²⁾	2.0
Sloan and others ⁽¹³⁾	11.0
Warren and Sommers ⁽²⁾ (collected cases)	6.6

The reported incidence is found to be from 1 to 11 per cent and the true incidence is probably about the 6.6 per cent found by

Warren and Sommers in more than 2,000 cases collected from the literature. The rectum and sigmoid are the most common sites of obstruction. Mechanical intestinal obstruction will, of course, require operative relief.

Carcinoma

Carcinoma of the colon developing in ulcerative colitis has been the subject of a large number of papers. Opinions vary considerably, and the two extremes are represented by the following reports.

Table 3
Incidence of Carcinoma

	Per Cent
Felsen and Wolarsky ⁽¹⁴⁾ (855 cases)	0
Wheelock and Warren ⁽¹⁵⁾ (319 cases) (of those followed)	8.8 18.1
Lynn ⁽¹⁶⁾ , 1,467 collected cases to 1944	1.9
Machella ⁽¹⁷⁾ , 6,890 collected cases 1945-52	3.0

Felsen and Wolarsky⁽¹⁴⁾ "examined repeatedly over considerable periods" 855 patients with ulcerative colitis. Fifteen and seven tenths per cent of these had polyposis, and 28.3 per cent of those with polyposis had had ulcerative colitis for nine years or longer. None of the patients with polyposis had carcinoma; in fact, at the time of reporting none of the 855 patients had evidence of carcinoma. Wheelock and Warren⁽¹⁵⁾ reported a group of 319 patients who had lived 10 or more years after a diagnosis of ulcerative colitis was made; 8.8 per cent developed carcinoma. If those lost to follow-up were omitted from the calculation, the incidence of carcinoma was 18.1 per cent. In two large collected series, the incidence was 1.9 and 3 per cent, respectively.

Pseudopolyposis has been thought by some to be the basis for the development of carcinoma, whereas others are emphatic that no relationship exists. Premalignant mucosal polyps should develop in patients with ulcerative colitis to the same degree as in the equivalent age group in the general population. Warren and Sommers⁽²⁾ believe that with the recurrent ulceration and healing, eventually foci of precancerous epithelial hyperplasia develop in the unfavorable environment. All agree that inflammatory polyps are not premalignant, but the possibility that abnormal and possibly adenomatous hyperplasia develops must be noted. The frequency of carcinoma is undoubtedly related to the duration of the ulcerative

colitis. Dennis and Karlson⁽¹¹⁾ found the incidence of carcinoma to be 10 per cent in patients having ulcerative colitis for more than 10 years, and stated that the risk increased about 2/3 of 1 per cent for each additional year.

The diagnosis of carcinoma of the colon developing in a patient with ulcerative colitis is particularly difficult. These patients are accustomed to abdominal discomfort, blood in the stools, and changes in bowel habit, so that the major early symptoms of carcinoma will ordinarily be ignored. Only with the development of a mass, a complete obstruction, or a similar major change will the possibility of neoplasm be considered. Parenthetically, it should be noted that deaths attributed to chronic ulcerative colitis may well be due to carcinoma if autopsy confirmation is not obtained.

From the reported cases of carcinoma and ulcerative colitis the following statements appear justified:

1. The incidence of carcinoma of the colon is higher in patients with ulcerative colitis, reportedly averaging about 3 per cent.
2. Carcinoma tends to appear at a younger age in these patients, the average being 44.3 years in one large series.
3. The incidence of carcinoma increases with the duration of the ulcerative colitis, several authors stating that an incidence of 20 per cent may be expected in those with ulcerative colitis for more than 20 years.
4. This type of carcinoma is highly malignant and is seldom cured; only one five-year survivor was found in one series of 73 cases.
5. The malignancy is frequently multiple; in one reported group of 40 resected specimens, the carcinoma was multicentric in 21.
6. Ileostomy provides no protection against this complication, nor does quiescent disease.

A suspicion of the development of carcinoma should be an urgent indication for operation. Wheelock and Warren⁽¹⁵⁾ feel that continuation of the disease for two to three years warrants operation on this basis, whereas Dennis and Karlson⁽¹¹⁾ set the time limit at five years. Certainly any patient with ulcerative colitis for more than 10 years should be seriously considered for

colectomy. Obviously, these patients deserve extremely careful follow-up, with frequent proctoscopic and barium enema examination.

Elective Indications for Surgery

The elective indications for surgery in ulcerative colitis are as follows:

1. Intractable disease
2. Severe local complications
 - a. Pseudopolypoidosis
 - b. Abscess and fistula
 - c. Rectal and anal lesions
3. Systemic complications
 - a. Arthritis
 - b. Pyoderma
 - c. Miscellaneous: anemia, malnutrition, liver disease, thromboembolic disease, and so forth.

Intractable disease

Intractable disease is difficult to define precisely, although it is the most frequent indication for operation in a number of large series. The patient who has repeated attacks of ulcerative colitis requiring prolonged hospitalization; who has become an economic and social liability; who responds poorly and only temporarily to medical therapy; who cannot maintain nutrition, or who shows irreversible changes in the colon should be considered for operation. The results of medical therapy in those with continuous symptoms are not good, and operation should probably be considered for many of the patients who have remissions which are not asymptomatic or prolonged. A large group of patients, followed for many years by unbiased investigators will have to be reported before all questions can be answered concerning this indication.

Local complications

Pseudopolypoidosis has already been mentioned in reference to malignancy.

Table 4
Incidence of Pseudopolypoidosis

	Per Cent
Cattell and Sachs ⁽⁶⁾	8.0
Felsen and Wolarsky ⁽¹⁴⁾	15.7
Kirsner and others ⁽⁴⁾	16.0
Sloan and others ⁽¹³⁾	19.0
Warren and Sommers ⁽²⁾	45.0

The reported incidence is from 8 to 45 per cent. Regardless of any possible association with malignancy, Cattell and Sachs⁽⁶⁾ feel that pseudopolypoidosis is an indication for operation, since patients in this group generally respond poorly to medical therapy. Garlock and Lyons⁽³⁾, and also Gabriel⁽¹⁸⁾,

state that pseudopolyposis is a definite indication for colectomy.

Localized abscess may form at a point of perforation, and fistula into other portions of the bowel or into the bladder may develop.

Table 5
Incidence of Fistula and Abscess

	Per Cent
Bone and others ⁽¹⁰⁾	8.0
Cattell and Sachs ⁽⁶⁾	11.0
Gleckler and Jones ⁽¹⁹⁾	9.0
Warren and Sommers ⁽²⁾	6.0

The incidence of this complication ranges from 6 to 11 per cent. The necessity for operation in nearly all of these cases is obvious.

These patients are subject to serious rectal and anal complications such as severe hemorrhoids, fissure-in-ano, perirectal abscess, and fistula, both cutaneous and rectovaginal.

Table 6
Incidence of Anorectal Complications

	Per Cent
Dennis and Karlson ⁽¹¹⁾	5.4
Gleckler and Jones ⁽¹⁹⁾	10.0
Sloan and others ⁽¹³⁾	6.0

With recurrent episodes of infection, incontinence may develop. At times these complications, and particularly the incontinence, are so disabling as to require colectomy.

Systemic complications

Two of the systemic complications—arthritis and pyoderma—deserve special mention.

Table 7
Incidence of Arthritis

	Per Cent
Bone and others ⁽⁹⁾	8.0
Cattell and Sachs ⁽⁶⁾	4.0
Dennis and Karlson ⁽¹¹⁾	7.1
Gleckler and Jones ⁽¹⁹⁾	5.0
Kirsner and others ⁽⁴⁾	8.0
Warren and Sommers ⁽²⁾	3.0

Arthritis has been reported in from 3 to 8 per cent of these patients. Numerous authors point out that if colectomy is performed before permanent joint damage has occurred, the arthritis can be improved considerably, and not infrequently cured.

Table 8
Incidence of Pyoderma

	Per Cent
Bone and others ⁽¹⁰⁾	3.0
Dennis and Karlson ⁽¹¹⁾	3.4
Kirsner and others ⁽⁴⁾	4.0
Warren and Sommers ⁽²⁾	9.0

In the severe skin infections which de-

velop at times, relief may be expected after removal of the diseased colon. Either of these two complications may be severe enough to require early surgical therapy. Numerous other complications occur. Some are obviously the result of prolonged malnutrition and anemia, whereas others are a direct result of infection. These will, of course, influence consideration of surgical intervention.

Ileostomy and Colectomy

Ileostomy

Historically, surgery was first employed in ulcerative colitis to form a proximal opening to permit irrigation of the colon with various drugs. Later ileostomy was used to "put the colon at rest." In the past, ileostomy was usually performed only as a heroic gesture when death appeared imminent, and a prohibitive mortality of 50 to 60 per cent resulted. The serious complications following ileostomy in those who survived added to the unfavorable results. In recent years, however, with the proper selection of patients and earlier operation, mortality after ileostomy has been markedly decreased.

The complications of ileostomy (skin irritation, electrolyte imbalance, obstruction, fistula formation, prolapse, retraction, hernia, and enteritis) have largely been eliminated by the improved technical methods developed by Turnbull and Crile⁽²⁰⁾, Dennis⁽¹¹⁾, Colcock and Mathiesen⁽²¹⁾, Warren and McKittrick⁽²²⁾, and others. The new plastic ileostomy bags and the skin adherents have been of immeasurable value.

Colectomy

Virtually all patients who present the indications for ileostomy also have the indications for subtotal or total colectomy, which should be carried out either at the time of ileostomy or as soon thereafter as practical.

The immediate results are well illustrated by the recent report of Colcock and Mathiesen⁽²¹⁾. They reviewed 307 patients operated upon between 1946-1954, 206 of whom had colectomy. In the entire group, the operative mortality rate was 3.4 per cent. Lahey, in 1950, reported a group of 263 patients who had 531 operations, including 145 total colectomies. The operative mortality prior to 1947 was 11.8 per cent and from 1947 to 1949, 1.8 per cent. As noted before, Ripstein⁽⁷⁾ carried out 43 colec-

tomies for acute fulminating disease, with only 2 deaths.

Table 10
Deaths Following Ileostomy

	Per Cent
Prior to 1930	50.0
1930-1939	26.8
1940-1949	12.5
1950-1953	7.7

It is doubtful if these low mortality rates can be attained by many surgeons or groups, but the mortality has clearly decreased remarkably.

Late results

Late results after ileostomy and colectomy are impressive, and are well summarized by Kirsner and Palmer. They stated that "the rehabilitation of the patients after colectomy and ileostomy often is striking, with pronounced rapid gain in weight and strength, subsidence of arthritis, and correction of anemia. The transformation of the emotional status of the patient is especially noteworthy. Improvements in the construction of the ileostomy and in the design of ileostomy appliances allow a complete return to a normal, active, useful life without embarrassment or serious discomfort."

McKittrick and Moore⁽²³⁾ followed 104 patients with reference to ileostomy and found only 9 who had not adjusted completely to the procedure. Ninety-seven per cent were working.

Summary

Approximately 25 per cent of patients with ulcerative colitis will require surgical therapy for intractable disease or for complications. Ileostomy and colectomy will be necessary in most of these patients. The operative mortality should be relatively low, probably less than 5 per cent, and the survivors may anticipate nearly complete rehabilitation.

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Polyps of the Colon and Rectum

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WINSTON-SALEM

The most common tumor of the colon and rectum, benign or malignant, is the adenomatous polyp. This tumor has been found to be present in from 7 to 10 per cent of all adults.

The significance of these lesions is their tendency to undergo malignant change, and their proper management, par excellence, is preventive surgery. Indeed, it is generally held that all adenocarcinomas of the rectum and colon arise in preexisting benign adenomatous lesions.

The evidence for this belief, both direct and indirect, is as follows:

1. In any given region of the large intestines the incidence of carcinoma and adenomatous polyps is about the same. For example, the incidence of each in the rectosigmoid is 75 to 80 per cent; similarly, 10 per cent in the descending colon, 4 per cent in the transverse colon, and 6 per cent in the ascending colon.
2. The two lesions are associated in from 25 to 75 per cent of series reports, adenomatous polyps being, on an average, three times as common in patients undergoing surgery for the large intestines.
3. Certain polyps have been observed to undergo malignant change. For one reason or another, some patients have refused surgical intervention for polypoid lesions, proved to be benign, which subsequently became malignant. We have observed one such patient in our experience.
4. As indirect evidence for the relationship between these two lesions, it has been pointed out repeatedly that the 3:2 ratio of benign and malignant lesions of the colon is the same in the two sexes.

This presentation is concerned with the three broad types of adenomas occurring in the rectum and colon. These types, which differ primarily in incidence, morphology,

and surgical implications, are the adenomatous polyp, the papillary adenoma, and familial polyposis.

The Adenomatous Polyp

The adenomatous polyp is by far the most common of the benign tumors of the rectum and colon. Grossly, it appears as a rounded, reddish or brown mass, varying from a few millimeters to 3 or more cm. in diameter. Though it may be found to be sessile, continued peristaltic action usually results in the formation of a pedicle of varying length. The pedicle simply represents a tenting of the redundant mucosa.

Bleeding is the most common symptom in patients with adenomatous polyps, occurring in roughly one-half of the cases. About one third of the patients are asymptomatic, and the polyps are found incidentally in a routine sigmoidoscopic or digital examination, which should be a part of every complete physical examination. An inconstant number of patients will exhibit pain from increased peristaltic activity, with partial obstruction and possible intussusception, tenesmus, actual prolapse of the polyp, diarrhea, or passage of mucus.

Diagnosis depends in large part on the performance of an adequate sigmoidoscopic examination, since three fourths of these lesions occur within 25 cm. of the anal canal. The barium enema, with double contrast technique, must be relied upon for lesions above this level. Repeated examinations are often necessary, and extreme care must be exercised to clean the colon completely.

The treatment of the adenomatous polyp is surgical excision. It is preferable, where possible, to remove the lesions surgically in order to make an accurate microscopic examination of the removed tissue. Electrocautery and fulguration are employed preferably as an adjunct to surgical removal rather than as the primary approach. In the majority of such lesions this is possible.

The approach to the removal of these lesions depends upon the location of the

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adenoma and falls roughly into one of three groups:

1. The few which are located close enough to the anal canal may be delivered through the anus and completely removed, with ligation of the stalk flush with the mucosa under adequate direct vision. The low-lying sessile lesions may be treated in this way also.
2. Those presenting at or below the peritoneal reflection require an approach through the sigmoidoscope. If the lesion is only a few millimeters in diameter, it may be removed by the biopsy forceps alone. Pedunculated polyps are best removed by means of a cautery snare placed at the base of the stalk, the cautery serving as a means of hemostasis as the snare slowly clips the stalk of the polyp flush with the bowel wall. The larger sessile lesions require more complicated techniques, which will be discussed below.
3. In my opinion, polyps situated above the peritoneal reflection should be approached transabdominally, with colotomy and surgical excision of the polyp. Localization of the lesions can present a problem, for even with careful palpation the larger lesions are occasionally difficult to find, and the smaller ones are even more elusive. The fact that such lesions are multiple in about one third of the cases complicates the situation even more. For these reasons a thorough visual search of the entire colon is usually indicated and may be accomplished readily through three openings located in the mid-ascending, mid-transverse and mid-descending colon. In this fashion the entire mucosal surface of the large intestine may be carefully scrutinized.

After localization these lesions may be surgically excised at the base of the stalk under direct vision. In polyps which have been removed by way of the transabdominal approach, frozen sections of the suspicious lesions only are examined, since examination of colonic lesions by the frozen section technique is somewhat difficult to interpret.

Other Adenomatous Lesions

Two other adenomatous lesions of the colon and rectum though relatively uncommon, will be discussed briefly.

Papillary adenoma

The papillary adenoma or villous papilloma of the rectum and colon, though a true adenoma, is distinguished from the adenomatous polyp by certain definite criteria:

1. It has a definite villous configuration.
2. It has a broad, sessile base, without a pedicle.
3. It is soft, velvety, and without evidence of ulceration or induration.
4. It is mobile, and superficially located, without fixation.

This lesion appears grossly as a large, velvety, broad based exuberant growth, and may occupy the full circumference of the bowel. It is commonly low-lying, and almost without exception within the reach of the sigmoidoscope. It may bleed, obstruct, produce large quantities of mucus, or initiate intractable tenesmus. Roughly 20 per cent of these lesions will show adenocarcinoma *in situ* at the time of removal. They are, however, slow to metastasize and invade the lamina propria.

Their management, as that of all adenomatous growths, is complete surgical removal. In the low-lying lesions this may be accomplished by excision down to the muscularis and closure of the mucosal defect. If on examination the lamina propria is invaded, radical resection of the rectum is indicated. Larger lesions involving the wide arc or the total circumference of the bowel may best be managed by a pull-through procedure or direct exposure by the Kraske approach, with sleeve resection of the rectum.

Familial polyposis

Familial polyposis (intestinal adenomatosis) is an hereditary condition involving the colon and the rectum, transmitted by and attacking both sexes. It is apparently due to a gene mutation inherited by a Mendelian dominant. It is characterized by diffuse involvement of the colon and rectum by literally thousands of polyps, sessile and pedunculated, of varying sizes.

Symptoms vary widely, although bleeding is present in 60 per cent of the patients and diarrhea in about 30 per cent. Often the patient is unaware of his condition until a complicating carcinoma of the colon or rectum intervenes. It is generally felt that all patients who live long enough, and in whom this condition remains untreated, will

undergo malignant degeneration in one or more of the polyps.

Extirpation of these lesions requires rather extensive surgery, involving total or near total colectomy. Removal of the colon down to the rectosigmoid with ileosigmoidostomy is the procedure of choice in those instances in which polyps in the rectum can be removed completely by ex-

cision or fulguration. If the polyps are too numerous for this type of control, total colectomy and permanent ileostomy is the procedure of choice.

Summary

The clinical characteristics, surgical implications, and methods of management of certain adenomatous lesions of the colon and rectum are presented.

* * *

Carcinoma of the Colon

GEORGE T. WOOD, JR., M.D.

HIGH POINT

Malignant lesions of the colon are among the commonest cancers in man. They are frequently engrafted on the only precancerous lesion — adenomatous polyp — now known to man.

There is still much controversy concerning the management of these lesions. The conflict probably exists between the primary low surgical mortality and normal physiology marking limited resections as against the effort to eradicate the disease by a more radical operation. There is a price to pay in morbidity and mortality in adequate resections, but when one is dealing with a killer, radical surgery and long risks are in order.

The principle issue is whether the case is favorable or unfavorable for surgery, and whether the operation is palliative or is performed with the hope of effecting a 5 or 10 year survival. If the case is favorable—that is, if no lymph nodes are involved—between 60 and 65 per cent of the patients should be living and well five years later, and from 55 to 60 per cent ten years later. However, if the case is unfavorable—that is, if lymph nodes are involved—only 15 per cent of the patients will be living and well five years later, and about 10 per cent at the end of ten years. The rate of operability has been increased to the point that about 75 to 80 per cent of the lesions can be removed, though some of these operations will be palliative only. About 20 to 25 per cent of the growths cannot be resected.

Symptoms and Signs

Cancer of the colon presents no typical early signs or symptoms. The anatomic dif-

ferences between the right and left colon and the difference in the type of lesions on the two sides makes for dissimilar symptoms. Lesions on the right tend to ulcerate, and do not produce early obstruction because of the size of the lumen and the liquid nature of the contents; hence anemia, weakness, and weight loss may be the outstanding symptoms. Many of these patients think they have appendicitis.

Case 1

A 46 year old woman presented the complaint of attacks of periumbilical pain, occurring at two-week intervals, for the past three months. The attacks lasted from four to six hours, and were associated with vomiting and a 12-pound weight loss. The patient died of a cerebral metastasis three years after resection. At autopsy the abdomen was found to be entirely negative.

Case 2

A 42 year old man presented the complaint of intermittent pain in the right lower quadrant of the abdomen of two and one half months' duration. He was seen by two physicians, who could not confirm the diagnosis of appendicitis. There had been a 20-pound weight loss and weakness, but no blood in the stools. Roentgenograms were not taken until a mass was palpated.

Moreover, many of these patients are treated for anemia without benefit of stool or x-ray studies.

Case 3

A 76 year old woman had had marked anemia and a 20-pound loss of weight over a period of seven months before a mass could be palpated in the right portion of the abdomen and confirmatory roentgenograms taken.

Case 4

This patient, a 61 year old man, had complained of weakness and had been treated for anemia for

the past five months. He had no symptoms referable to the colon until a mass was palpated in the right lower quadrant of the abdomen.

In lesions of the left colon the lumen is smaller, there are areas of normal constriction, the bowel contents are more solid, and the patient is more likely to complain of obstructive symptoms and to notice blood in the stool at an earlier date.

Case 5

For 13 months constipation had been a problem with this 57 year old woman, but roentgenograms taken at that time were negative. During the next 12 months constipation and mild bleeding were thought to be due to hemorrhoids. Three weeks before admission she had had cramp-like pains associated with partial obstruction. X-ray studies then revealed a sigmoid lesion.

Case 6

The patient, a 36 year old woman, presented a history of slight bleeding without obstruction or constipation of three weeks' duration. A sigmoidoscopic examination was negative. X-ray studies revealed a sigmoid polyp. At resection this was found to be an adenomatous polyp which had undergone malignant degeneration.

Lesions in the left part of the colon may be advanced without producing symptoms of obstruction.

Case 7

A 28 year old woman presented the chief complaint of severe intermittent pain in the left lower quadrant of five days' duration. During this time she did not have a stool. A palpable cul-de-sac mass was thought to be ovarian. Operation disclosed metastasis to the liver, direct extension to the left ovary, and an obstructing mass of the sigmoid colon.

Diagnosis

The diagnosis of cancer of the colon should be simple. A digital examination of the rectum with the patient in the proper position, sigmoidoscopic examination of the properly prepared bowel, and stool studies for occult blood, followed by a barium enema, should be the routine procedure. If a lesion is seen, a biopsy should be done. Roentgenograms of the rectum are not trustworthy, and the roentgenologist should insist that a sigmoidoscopic examination be done before x-ray studies are made. Negative x-ray studies of the right colon should be repeated at an early date if the clinical symptoms suggest a lesion in this area.

Case 8

In 1939 this 61 year old man had a rather large hemorrhage from the bowel, but no x-ray studies were made. In January, 1954, he had 16 bloody stools in three days. Roentgenograms were taken but were reported negative. In May, 1954, he had cramping pain associated with a palpable mass, but since the previous x-ray films had been negative, he did not have another examination until December, 1954, when a filling defect could be seen in the right transverse of the colon.

Case 9

A 56 year old man was admitted to the hospital on February 1, 1955, because of secondary anemia, loss of weight, and occult blood in the stool. Sigmoidoscopic examination and barium studies were negative. Reexamination two months later revealed a filling defect in the right portion of the colon. At this time a mass was palpable.

If the symptoms are still suggestive and no lesion is demonstrated, exploratory operation should be done after the patient is properly prepared. It has perhaps been the experience of some surgeons to find a carcinoma in the cecum when operating to take out a large sigmoid polyp.

Case 10

The patient, a 66 year old woman, presented the complaint of slight bleeding from the rectum of short duration. X-ray examination showed a large sigmoid polyp. A sigmoidoscopic examination and barium studies of the right colon were negative. Operation disclosed a large cancer of the cecum, with a benign polyp in the sigmoid colon.

A barium enema is hazardous when there is a lesion of the colon. The bowel can be perforated.

Case 11

This patient, a 59 year old woman, was admitted for study. The symptoms suggested a lesion of the transverse colon, which was confirmed by barium studies. Eighteen hours later she complained of severe abdominal pain and went into shock. A flat plate of the abdomen showed extravasated barium, operation revealed marked gangrene.

Preoperative Preparation

The preparation of these patients for surgery includes correcting the anemia, restoring low serum protein, decompressing the bowel if obstructed, and controlling the bacterial flora of the intestinal contents by chemotherapy. In elderly patients, cardiovascular problems should be evaluated and controlled insofar as possible. The anemia associated with lesions of the right colon may be marked, and may require multiple transfusions of whole blood. The hemato-

crit should be brought up to 40 or above. Low total serum protein is difficult to restore by parenteral measures, and too often these patients cannot take adequate food by mouth. Serum albumin, protein hydrolysates, and blood should be administered.

Decompression is accomplished by repeated enemas and mild saline laxatives if obstruction is incomplete. If these measures are unsuccessful, cecostomy or transverse colostomy should be done. If surgical decompression is required, the procedure should be one that will not interfere with later resection. In my own experience, cecostomy has been successful for this purpose, and if it is done with a Pezzar catheter without exteriorization of the cecum, a secondary closure will not be necessary. Neomycin and Sulfathaladine have been the chemotherapeutic agents of choice.

In the unobstructed cases, 18 hours of medication including a dose of castor oil are required. In cases of obstruction, medication without castor oil should be given for 72 hours. The schedule of dosage is: Neomycin, 1 Gm., and Sulfathaladine, 1½ Gm. hourly for four hours, then every four hours until operation. If castor oil is used, 60 cc. is given after the fourth dose of the drugs. McKittrick has advised against using these drugs as a "surgeon's bibb," to replace adequate preparation of the bowel and careful surgical technique.

A word about the postoperative symptoms following the use of these drugs: Distressing diarrhea has occurred about the seventh postoperative day in many cases, and has been difficult to control. Pseudomembranous enterocolitis has not been recognized in our cases. Alteration in bacterial flora seems to be the cause of the condition which has responded fairly well to lactic acid bacilli by mouth.

Choice of Operation

Multiple primary lesions or lesions due to implantation occur frequently enough to demand a thorough examination of the entire colon at operation, and it is suggested that a sterile sigmoidoscope be available for the examination of the proximal and distal bowel at the time of surgery. Polyps in the bowel adjacent to the resection should not be overlooked.

The operation for cancer of the colon should be designed to remove the lesion and

the gland-bearing area, with restoration of bowel continuity.

The requirement of an adequate curative procedure are: (1) prevention of manipulative spread; (2) prevention of implantation; (3) excision of sufficient bowel to include maximum intramural spread; (4) removal of the cancer by *en bloc* excision, with the dependent echelons of lymph node spread (de Peyster and Gilchrist).

On the right side, an ileocelectomy, including the ascending, hepatic flexure and right transverse colon and mesentery, with an end-to-end anastomosis of the ileum to the left transverse colon, is performed. This procedure has been widely accepted; for lesions in the splenic flexure, however, resection has been more limited, but should include the left transverse and descending colon, together with the spleen, in many cases, and anastomosis of the mid-transverse to the distal bowel. The same is true with regard to sigmoid lesions.

The chief factor limiting the degree of resection is the vascular supply to the remaining bowel. The inferior mesenteric artery should be ligated close to its origin and the mesentery and glands removed. Open anastomosis instead of aseptic operation over clamps is preferable, and one can be more certain of the blood supply. Other factors which limit the extent of resection are: (1) the boldness and skill of the surgeon; (2) hepatic metastasis; (3) fixation of the growth; (4) general systemic conditions affecting individual resistance to surgery; (5) increase in the resectability rate over the past few years.

Palliative resection

The removal of a large ulcerating or obstructing growth is desirable even in the presence of metastasis. Bowel continuity should be established if possible, but again one may ask, "Are we prolonging life or extending the act of dying?" Let us just hope we can make the last days more peaceful and comfortable for the patient, and less agonizing for the bereaved family.

Case 12

A 70 year old woman had had pain of the right lower quadrant of the abdomen, associated with fever, of about 10 weeks' duration. She had recently noted blood in the stool, but there had been no obstruction or weight loss. Physical examination disclosed a palpable mass in the right lower quadrant, fixed to the abdominal wall. X-ray examination showed a filling defect in the sigmoid colon.

At operation the lesion was found to extend through the bowel wall and to involve the abdominal wall, but it was possible to perform a palliative resection, with end-to-end anastomosis. Two benign polyps were found proximal to the lesion in the resected specimen. The patient is living and well two and one half years later, and shows no evidence of local or systemic disease.

Conclusion

We hope that the day will come when present surgical procedures will be replaced

by some chemotherapeutic agent which will offer a cure for cancer of the colon. Until then, however, we should strive for earlier diagnosis and increase the extent of resection in order to give these patients a better chance of a long term survival. Limited resections for the immediate advantages of lower morbidity and mortality should be discouraged.

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Carcinoma of the Rectum

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During the past several decades the knowledge and treatment of carcinoma of the rectum has steadily improved. New surgical procedures have been advocated, old procedures have been repopularized, and advances in technique have been instituted. As a result there has been an increase in the percentage of resectability and an increase in the survival rate. The careful studies and investigations of both surgeons and pathologists have helped us greatly in determining the prognosis of carcinoma of the rectum and in selecting the type of therapy to be employed in each individual case. We have learned that all rectal carcinomas are not necessarily treated alike. The gross appearance of the lesion, its location, its degree of cellular differentiation, its method of spread are all of the greatest importance. Factors met at the operating table, such as the age and physical status of the patient, the size of the pelvis, the size and extent of the lesion, the presence or absence of metastases, all play a part in the procedure to be followed.

In the choice of operation for carcinoma of the rectum, the outstanding question is whether or not to preserve the anal sphincters and permit restoration of intestinal continuity, thus avoiding a permanent colostomy. Sommers and Mattocks⁽¹⁾ aptly stated: "The thought of saving the sphincters should not be approached with enthusiasm but with factual knowledge and considerable surgical skill, for one is dealing with cancer, a lesion never to be treated too early and seldom too radically."

Before we discuss the most widely accepted surgical procedures in the treatment of carcinoma of the rectum, and especially before we judge their relative merits, it is essential to review the anatomy of the rectum, with special emphasis on its lymphatic drainage, and also the modes of spread of carcinoma in the area. A thorough knowledge of the lymphatic drainage of the rectum is essential. In 1908 Moynihan⁽²⁾ stated that "surgery of malignant disease is not the surgery of organs, it is the anatomy of the lymphatic system." His remarks are particularly apropos to carcinoma of the rectum.

Anatomy

The rectum begins at the lower portion of the sigmoid at the level of the body of the third sacral vertebra. It ends at the anus at the tip of the coccyx. It is 12.5 to 13.5 cm. in length and varies in diameter at different levels. The first or upper portion of the rectum lies within the pelvic cavity, and is covered by peritoneum on its anterior and lateral aspects. The lower limit of the peritoneal covering on the posterior surface of the large intestine is at the beginning of the rectum at the third sacral vertebra. The level at which the peritoneum leaves the wall of the rectum anteriorly is higher in the male than in the female. In the male the reflection occurs about 7.5 cm. proximal to the anal orifice, the peritoneum being reflected upon the bladder, thus forming the rectovesical pouch. In the female this reflection occurs about 5.5 cm. proximal to the anal orifice, the reflection being

upon the vagina and thus forming the rectovaginal pouch or the cul-de-sac of Douglas.

The location of carcinoma of the rectum in relation to this peritoneal reflection is all important in the prognosis and treatment, as will be shown later. The rectum is rather loosely attached in the pelvis by the endopelvic fascia. The levator ani muscles come into contact with the lateral surfaces of the rectum about 3.5 cm. proximal to the anal orifice. The levators, by serving as a fixed point of attachment of the rectum, probably act as its main support.

The arterial supply of the rectum is derived from the superior, middle, and inferior hemorrhoidal arteries. The superior hemorrhoidal artery, which is a branch of the inferior mesenteric artery, anastomoses in its distal portion on the posterior surface of the rectum with the middle and inferior hemorrhoidal arteries, which are branches of the hypogastric arteries. The venous drainage of the rectum occurs through the middle and inferior hemorrhoidal veins, which are branches of the hypogastric veins, and through the superior hemorrhoidal vein, which is a branch of the inferior mesenteric vein. Thus an intimate connection between the rectum and both the portal and systemic systems exists.

Lymphatic Drainage and Spread

In the mucosa of the rectum is a rich lymphatic plexus, which extends throughout the submucosal and muscular layers. From the submucosa the lymph vessels course in a radial manner through the muscle coats to form a subserous plexus. Although a few channels run for a short distance longitudinally between the muscle coats, the main direction of flow is radial⁽³⁾. It has been shown that the longitudinal spread is seldom more than 2 cm. above or below the gross mucosal edge of the lesion⁽⁴⁾.

The lymphatic drainage of the rectum follows somewhat, but not entirely, the vascular pattern—that is, the lymph vessels follow the course of the superior, middle, and inferior hemorrhoidal vessels.

By far the principal lymphatic pedicle of spread of the rectum is along the course of the superior hemorrhoidal and inferior mesenteric arteries. The entire rectum is drained by this system. The fact that dye injected anywhere in the rectal mucosa can

be demonstrated in the inferior mesenteric nodes substantiates this statement. This is the only lymphatic spread for carcinomas of the upper rectum. A majority of the lymphatic channels in the rectum pass to the pararectal nodes of Gerota—4 to 10 in number—which are located above the levator ani muscles on the posterolateral rectal wall, and then to intermediate nodes about the superior hemorrhoidal bifurcation. Efferent trunks from the Gerota and superior hemorrhoidal nodes course along the superior hemorrhoidal vessels to reach the principal nodes—5 to 10 in number—at the origin of the inferior mesenteric artery. Other channels travel without interruption to these latter nodes. Bacon⁽³⁾ believes that dissection and removal of the inferior mesenteric lymph nodes are essential in every radical operation for cancer of the anus, rectum, sigmoid, or descending colon.

The lymphatics from the anal canal extend across the perineum to the superficial and deep inguinal nodes. From the upper anal canal and lower rectum the lymph vessels follow the course of the inferior hemorrhoidal artery across the ischiorectal fossa and then proceed to the hypogastric, common iliac, and pre-aortic nodes.

Lymph vessels from a higher level in the rectum spread more or less in a lateral manner, following the course of the middle hemorrhoidal artery, and, to a lesser degree, of the middle and lateral sacral vessels. These lymphatics drain into several nodes in the lateral rectal ligaments, from which efferent vessels go to the internal iliac and pre-aortic nodes. Spread from this area may also occur anteriorly up the rectogenital septum and then laterally to the internal iliac vessels.

As mentioned previously, from the mid-rectum upward the lymphatic drainage is by way of the superior lymph pedicle along the course of the superior hemorrhoidal vessels.

Modes of Spread

After this brief review of the anatomy of the rectum including the vascular and lymphatic drainage it is important to discuss the different modes by which carcinoma of the rectum spreads.

Carcinoma of the rectum may be disseminated by the following means⁽⁵⁾:

Direct extension: Carcinoma begins in the crypts of Lieberkühn in the rectal mu-

cosa. Direct extension may occur through the rectal wall and marginally along the mucosa. The plane of greatest longitudinal spread occurs in the mucosa, and is seldom more than 2 cm. in either direction from the gross mucosal edge of the lesion⁽⁴⁾. Pathologic studies have shown that as far as the rectal wall is concerned, there is no need for transection more than 4 to 5 cm. below the gross lesion⁽¹⁾. By direct extension, the rectal wall may be penetrated and the contiguous structures invaded.

Lymphatic spread: Spread by this manner is usually embolic in nature. When a node is involved by metastasis, further spread is prevented until the node is completely replaced by tumor cells. Then new emboli go into other lymph channels. An important fact is that skip patterns may occur—for example, metastatic nodes may lie at some distance from the original tumor, with normal nodes intervening.

Venous spread: Ravitch⁽⁶⁾ reported invasion of veins in 15 per cent of cancers of the rectum. According to Grinnell⁽⁷⁾, tumors of the rectum have a greater tendency to invade veins than has any other tumor of the colon. Venous invasion may even occur before lymph nodes are involved.

Perineural spread: Seefeld and Bargaen⁽⁸⁾ found that in 30 per cent of 100 surgically removed carcinomas of the rectum there was perineural spread. Such a spread is associated with a strong tendency to local recurrence.

Prognosis

An accurate basis for determining the prognosis in carcinoma of the rectum is not always possible, but we may be aided by a number of factors:

Gross appearance of the lesions: Carcinoma of the rectum may be polypoid or ulcerative. A polypoid tumor tends to grow by extension into the rectal lumen, with relatively late involvement of the submucosal and muscular layers of the rectal wall. It is of low-grade malignancy, and metastasis occurs late. The ulcerative type grows by extension into the submucosa, muscular layer, and finally the serosa. It penetrates the rectal wall earlier than does the polypoid type of lesion. Even though the ulcerative lesion be small, it may show extensive invasion and widespread and early metastasis.

Location of the tumor: A carcinoma of

the rectum located below the peritoneal reflection has a much higher rate of recurrence than does one above it, and offers a poorer prognosis. Gilchrist and David⁽⁹⁾ reported 55 patients with surgically treated intraperitoneal rectal carcinomas, 18 per cent of whom died of recurrence within five years. In a series of 122 cases of carcinoma below the peritoneal reflection, 43 per cent of the patients died within five years.

Grade of extension: According to Duke's classification of rectal carcinomas⁽¹⁰⁾, Grade A designates a cancer that is confined to the mucosa; Grade B includes those lesions that have penetrated into or through the muscularis mucosa without lymph node involvement; Grade C includes those lesions which have extended to the muscularis mucosa and have metastasized to lymph nodes; Grade C₂ includes the lesions that have extended through all layers of the rectal wall, with positive nodes. Gabriel, Dukes and Bussey⁽¹¹⁾ reported a five-year survival rate in 91 per cent of the grade A cases, 64 per cent in Grade B, and 16 per cent in Grade C.

Degree of cellular differentiation: Broders'⁽¹¹⁾ method of grading tumors is based on the degree of cellular anaplasia present. This classification is of doubtful preoperative value in the management of rectal carcinoma, because the nature of the tumor varies in different areas and biopsies are therefore not entirely reliable. We must examine specimens from all regions and of the entire depth of the tumor before we can histologically offer a reasonably accurate prognosis.

Evaluation of Procedures

The rationale and relative values of the different operative procedures employed in the treatment of carcinoma of the rectum should now be considered. Regardless of what procedure is chosen, two requirements should be fulfilled: (1) The tumor must be resected together with an adequate margin of apparently normal tissue; and (2) the field of lymphatic drainage of the tumor must be resected as extensively as possible within the limits of the individual case. As Sommers⁽¹⁾ has stated: "In selecting the proper operative treatment for cancer of the rectum, a clear knowledge of its pathology and zones of spread is essential to the surgeon, for he must know the reason for each part of his operative treatment." And

let us never forget that each case is an individual one. With experience every surgeon can develop a degree of technical skill, but it is his judgment that differentiates him from the everyday journeyman surgeon.

Operative Procedures

The operative procedures employed in the treatment of carcinoma of the rectum are many and varied. The most widely accepted operations are Miles' classical abdominoperineal resection, with permanent colostomy; the abdominoperineal proctosigmoidectomy, with preservation of the anal sphincters and transplantation of the bowel to the anus; and the anterior resection, with end-to-end anastomosis.

Extirpation of the rectum with preservation of the anal sphincters was employed by several European surgeons, particularly Hochenegg⁽¹²⁾, in the latter part of the nineteenth century. Because of its high recurrence rate and many complications, the procedure fell into disfavor. These facts led Miles, at the turn of the century, to his intensive investigations of the lymphatic spread of the rectum; and he devised his classical abdominoperineal resection with permanent colostomy in an effort to deal with the superior, lateral, and inferior pathways of lymphatic spread. Although some of Miles' concepts concerning lymphatic drainage have proved somewhat inaccurate, his work is generally regarded as the greatest single contribution to the surgical treatment of cancer of the rectum. It is to two American surgeons, Gilchrist and David⁽¹³⁾, that we are indebted for an accurate and concise demonstration of the lymphatic drainage of the rectum.

At various times since Miles described his operation in 1907, there have been attempts to dispense with the abdominal colostomy and to restrict the perineal portion of the operation. These efforts involve mainly the pull-through operation and the anterior resection. To many surgeons neither of these operations meets the criteria of an adequate operation for cancer. Neither of them is new. After the Hochenegg "Durchzug" (pull-through) procedure was largely abandoned in the English-speaking countries more than 50 years ago, Babcock and Bacon reintroduced it in the United States, with some modifications, in the early 1930's, and have reported satisfactory

results. The anterior resection is of greater antiquity. Anterior resection is the term applied to the removal of the lower sigmoid, rectosigmoid, and upper rectum. Restoration of intestinal continuity is obtained by an end-to-end anastomosis between the sigmoid and rectum. It was given a very thorough trial by the late George Crile, Sr., and later by Thomas Jones of the same clinic. They discarded the operation nearly 30 years ago. An attempt to revive its popularity was made by Dixon⁽¹⁴⁾ and Wangenstein⁽¹⁵⁾ in this country.

Lesions of the lower rectum

No matter what surgical procedure is contemplated, it must be remembered that not all cancers of the rectum are alike. It was emphatically shown by Gilchrist and David⁽⁹⁾ that the prognosis for carcinomas of the rectum below the peritoneal reflection is much worse than for lesions above this reflection. Gray⁽¹⁶⁾ stated that thorough investigations by many surgeons and pathologists have shown unquestionably that the internal anal sphincters are microscopically invaded by malignant cells in a high proportion of the cases where the lower border of the tumor extends down to within 3 cm. of the upper border of the levator muscles. Obviously the sphincters should not be preserved in the presence of such a low-lying lesion. It is believed that the poor prognosis in the treatment of lesions at this low level is due to underestimation of the extent of lateral spread. Lateral lymphatic spread is primarily associated with carcinomas of the lower 4 to 5 cm. of the rectum. Guernsey, Waugh, and Dockerty⁽¹⁷⁾, after studying 210 specimens, concluded that no attempt should be made to preserve the sphincters when the primary lesion is within 5 cm. of the anal orifice. In these cases a wide resection of the rectum, including removal of the levators, the sphincters, and the pararectal tissues is mandatory. These rigid specifications are met by the Miles' combined abdominoperineal resection with colostomy.

Lesions in the mid-rectum

The greatest debate over the surgical treatment of cancer of the rectum concerns lesions located from 6 to 12 cm. above the anal orifice. Those advocating the sphincter-preserving type of operation for these lesions refer to the reports of Glover and Waugh⁽¹⁸⁾ and Mayo⁽¹⁹⁾, who found that

retrograde lymph node metastasis occurs in only about 1 per cent of the cases investigated, and then only if upward lymphatic extension is blocked by metastatic nodes. Even in these instances, metastatic nodes have not been found more than 3 to 4 cm. below the lower margin of the lesion. Also, except in extremely anaplastic lesions, the intramural spread is not more than 1 cm. beyond the apparent edge of the lesion (2 cm. as measured on the bowel before resection)⁽²⁰⁾. The advocates of sphincter-preservation maintain that these findings regarding local spread indicate that resection of 5 cm. of rectum and pararectal tissues below the lesion is adequate. In 600 cases thus treated, Bacon⁽²¹⁾ reported a mortality of 3 per cent. The five-year survival rate was 53 per cent, and the ten-year rate was 38 per cent. Waugh and Kurzweg⁽²²⁾ reported 45 such cases with a five year survival rate of 51.1 per cent.

Dixon⁽¹⁴⁾ lists as the chief objections to the pull-through operation: (1) It is more difficult technically; (2) it is more hazardous than the abdominoperineal resection; (3) fecal control after sphincter-preservation is little different from that achieved with abdominal colostomy; (4) it is a less radical and less effective method dealing with a malignant lesion than is the abdominoperineal operation. He refutes these complaints as being unfounded.

Lahey⁽²³⁾, in 1951, stated:

One of the objections we have always had to sphincter-preserving operations is a distinct conviction that with this procedure it will be almost impossible not to lean in the direction of limiting the radicalness of the procedure. Its advocates deny this criticism but we cannot conceive of a surgeon doing such a procedure being concerned with the blood supply of the colon being pulled down to the perineum without leaning in the direction of caution. We cannot conceive of a surgeon doing this operation without being a little handicapped by the need to preserve an adequate length of colon to get down to the level necessary to implant it on the perineum. I am convinced that were it possible to compare accurately pull-through procedures and sphincter-preserving procedures in a large series of cases with Miles resection and a colostomy, it would be found that these newer procedures have resulted in deaths and complications and lowered five-year survival rates that could have been avoided by employing abdominoperineal removal with colostomy.

His opinion is shared by a great majority

of surgeons who prefer the Miles abdominoperineal resection for lesions at this level.

Lesions of the upper rectum

Next we are concerned with lesions in the upper rectum, for example, 10 to 12 cm. above the anal orifice. The lymphatic spread for lesions in this area is upward only along the superior hemorrhoidal vessels to the nodes about the inferior mesenteric vessels and aorta, unless there is gross occlusion of the nodes. Anterior resection with primary anastomosis for carcinoma of the upper rectum as advocated by Dixon⁽¹⁴⁾ and Wangenstein⁽¹⁵⁾ is as effective as the Miles operation for lesions in this area. There is disagreement concerning the anterior resection. Smyth⁽²⁴⁾ feels that it should be reserved for two groups of patients: (1) the very old, who may be expected to die of intercurrent disease before cancer catches up with them; (2) those for whom the operation is physically possible, in whom obstruction is not a major symptom, and who already have metastasis to the liver, or other distant points.

Lymphatic dissection

In every radical operation for cancer of the anal canal, rectum, or sigmoid, whether it be the Miles abdominoperineal resection, a pull-through procedure, or an anterior resection, a regional and inferior mesenteric lymphatic dissection with aortic ligation of the inferior mesenteric artery should be considered essential. Many surgeons hesitate to do this lest the distal colon be deprived of its blood supply. However, adequate collateral circulation is supplied by the marginal artery. In 261 consecutive cases in which the above technique was employed by Bacon and Trimpi⁽²⁵⁾, the mortality was only 1.9 per cent, and no appreciable morbidity could be attributed to the ligation of the inferior mesenteric artery.

Carcinoma of the Anus

In conclusion, it is important to differentiate carcinoma of the anus from carcinoma of the rectum. The anal canal is lined with squamous epithelium, and therefore develops a different type of cancer which spreads not only along the usual three pedicles of lymphatic drainage but to the inguinal nodes. An operation for cancer of the anus should include simultaneous or secondary dissection of the inguinal structures.

Conclusion

The crux of the problem in the surgical management of carcinoma of the rectum is the realization that not all carcinomas in this portion of the intestinal tract are alike. Combined abdominoperineal resection with permanent colostomy is the operation of choice for lesions existing in the rectum below the peritoneal reflection, or just above the peritoneal reflection, unless a factor such as age or pathologic spread makes the procedure an unwise one. In the low-lying lesions the sphincter-preserving operations should not be performed. It is the consensus of the majority of surgeons that carcinomas of the mid-rectum are also best treated by the combined abdominoperineal resection. There is a definite place for the anterior resection. For lesions in the upper rectum and rectosigmoid, at least 12 cm. or more above the dentate line, anterior resection offers results as favorable as those of the Miles procedure. In this area, as previously mentioned, the lymphatic spread is upward only, and so the prognosis is better.

Finally, much confusion and many misinterpretations and misconceptions have resulted from an effort to compare statistics regarding five- and ten-year survival rates. In such comparisons, the relative value of the different surgical procedures for the treatment of carcinoma of the rectum can be accurately determined only if the series compared involve treatment of lesions in identical areas of the rectum.

Summary

1. The anatomy of the rectum, including its arterial, venous and lymphatic supply has been reviewed.

2. The methods of dissemination of carcinoma of the rectum are given.

3. Factors influencing the prognosis of carcinoma of the rectum are enumerated and briefly discussed.

4. The rationale and relative values of the most widely accepted operations for carcinoma of the rectum are discussed.

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The Genesis of Cancer of the Colon*

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CHAPEL HILL

We could well begin this discussion by asking: What is the significance of cancer of the colon as related to disability and death? Is it frequent enough and disabling enough to warrant weighted attention, and are these problems capable of solution?

Incidence of Cancer

It is difficult to ascertain accurately the over-all frequency of cancer. Indeed, any estimation of the annual number of deaths from this disease is subject to error. In a recent discussion of this point, Steiner⁽¹⁾ estimated that the failures due to inaccurate diagnosis and incorrect reporting represent a factor of approximately 20 per cent. Most pathologists, I believe, would agree with him. The failure to report all cases of cancer is particularly noted when another eminent cause of death has supervened, such as pulmonary embolism or pneumonia, or when the lesion is early and has produced few symptoms, or when the lesion has even been cured. Using figures from the National Office of Vital Statistics, and extrapolating⁽²⁾, Steiner estimates that an additional 79,000 cancer deaths should be added to the 207,721 reported for 1948. This would give a total of 286,721 and would mean that of the deaths reported for that year, approximately 17 per cent were directly caused by cancer, while approximately 20 per cent of those dying were people who either had cancer at the time of death or had been cured of cancer.

This same statistical source gives the large intestine as the most frequent site of cancers causing death—33,694 or 16.2 per cent for the year 1948. While undoubtedly other statistical sources might depress this relative position, I doubt if any authority would place it lower than second among the most frequent sites of death producing cancer. Our problem, then, is a major one, and well worth our attention.

The Search for Clinical Data

Spontaneous cancer of the colon is pri-

marily a disease of human beings. It is rare in such animals as the mouse, the rabbit, the rat and the hamster, which are so important at present in the study of experimental cancer. While at times it can be produced by the local application of potent carcinogens to the mucosa for a long period of time, this fact has added but little to our knowledge of the lesion. Just now, therefore, we are dependent upon clinical observation and study for our information concerning this disease. Here we enter into a phase of study in which clinical medicine differs from the basic biologic sciences, in that the physician must study a complex subject with many variables. As a rule he finds it difficult to modify his experiment in a controlled way. Often, therefore, his conclusions are based on the frequency of association of certain factors, and these when subjected to deductive analysis give us certain clinical concepts of the life history of the disease. As these concepts become confirmed by more and more experience, methods of therapy can be fashioned.

Our studies in the beginning, then, will be of an epidemiologic nature. They will relate to the identification of certain factors that may or may not be associated with cancer of the colon. It is well to point out that such studies cannot prove etiologic relationship. They can suggest guilt by association, but it must always remain merely a suggestion and not a primary cause-effect relationship. To the statistician the association of two events in more than 95 per cent of the instances becomes statistically significant. In medicine this is not necessarily true. A weird example would be the predominance of the association of the wearing of trousers with the occurrence of cancer of the prostate gland. Here is statistical significance of a very high order indeed, but the causal relationship leaves much to be desired. Nevertheless, such statistical studies are important, for they often suggest underlying factors of significance. Furthermore, when no association at all can be found between a particular event and cancer of the colon, we can be spared

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false lines of pursuit. Negative statistical evidence may at such times be more important than information of a more positive nature.

Recently Dorn and Cutler of the National Cancer Institute published a monograph on the morbidity from cancer in the United States⁽³⁾ from which I shall draw heavily for statistical information. In it they call attention to two important sources of error in the gathering of statistical data. These are well worth stressing.

One important requirement is that the population sample studied must be representative of the larger population under consideration. One can only approach perfection in this category. Obviously, to be completely accurate in studying aspects of colonic cancer as it affects the entire population, the entire population should be studied. This being impossible, one must resort to judicious sampling. Perhaps in this category lies the most flagrant error in the use of medical statistics. Too often broad conclusions are drawn from a study of a limited population, and it is so easy to add and divide.

The other requirement is that the data collected be sufficiently reliable. Here again perfection is difficult to attain. Microscopic verification of every lesion by a competent pathologist is usually impossible. Nevertheless there are other methods of diagnosis which, while not as accurate, usually reflect a high degree of reliability, and on the whole it is easier to meet this requirement than that of representative sampling. When either of these factors falls short of the degree of accuracy desired, the validity of the interpretation drops. One requirement is not more essential than the other, and one cannot be substituted for the other.

I need not go into the methods Dorn and Cutler used in arriving at their data. Suffice it to say these data are probably the most reliable available at the present time.

Possible Causal Factors

Age distribution

Let us consider first the factor of age. The modal age or the age period in which cancer of the large bowel most frequently appears is between 60 and 65 years (fig. 1). This suggests that whatever the cause or causal factors of this cancer may be, a considerable length of time is required for

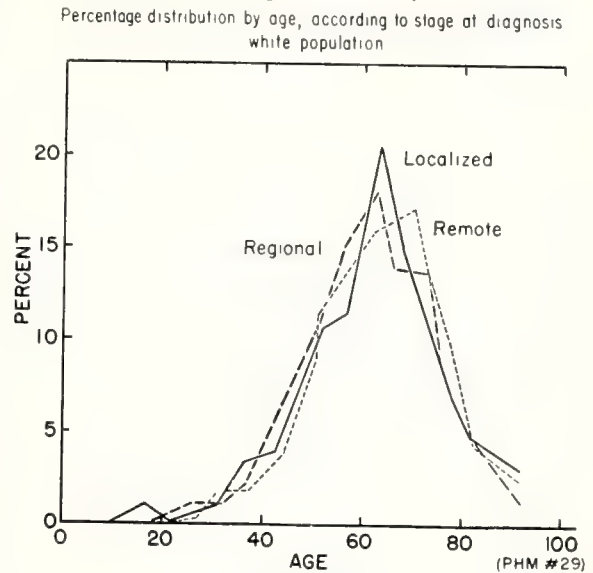


Fig. 1. Newly diagnosed cases of cancer of large intestine, 1947. (Modified from Dorn F., and Cutler, J. S.: Morbidity from Cancer in the U. S., United States Public Health Service, monograph no. 29.)

the cancer to develop. In this way it differs from trauma or acute infections. Again, while it does not exclude hereditary factors, it does strongly indicate that, if such factors are present, they also require the action of other agents or cancer of the large bowel would usually appear quite early in life.

We also notice that there is but little difference in the age distribution of cases when classified as to degree of extension at the time of diagnosis. This is disturbing, for the less extensive lesions should appear generally at an earlier age if all these cancers gave symptoms early and progressed at a fairly constant rate to widespread metastasis. It suggests, therefore, that the presence of metastasis is more a factor of tumor-host resistance than that of time, and that the relationship between early diagnosis and lack of extension may not be so clear cut. This was noted long ago in osteogenic sarcoma and more recently has been suspected of being true in cancer of the breast and cancer of the stomach.

Sex

There is but little difference in the frequency of cancer of the colon in either sex (fig. 2). This makes it possible for us to

Site	Males Per Cent	Females Per Cent
Genital organs	40.0	78.3
Breast	.8	70.6
Large intestine	25.2	26.8
Biliary passages	2.2	4.2
Thyroid	1.1	3.4

(PHM #29)

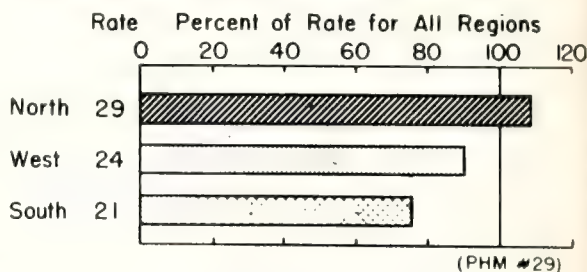
Fig. 2. Incidence rates by sex for the sites at which cancer is more likely to develop in females. (Modified from Dorn, F., and Cutler, S. J.: Morbidity from Cancer in the United States, U. S. Public Health Service, monograph no. 29.)

exclude any major effect from sex hormones or from occupation. It also makes it possible to exclude any sex-linkage in possible hereditary factors. Where sex differences have been reported, the incidence in the female is uniformly lower.

Race and geographic location

The effect of race and geographic location on the incidence of cancer of the colon is worth attention. As is well known, certain cancers such as those of the uterine cervix, esophagus, stomach, buccal cavity, and skin vary widely in frequency with different types of people in different lands. With cancer of the colon the picture is not too clear, owing to insufficient data. Reports from British Malaya, Egypt, Finland, Japan, Nigeria and Paraguay⁽⁴⁾ show the percentages of such cancers as are noted at autopsy to be uniformly similar although somewhat lower than that noted in the United States, but still hardly enough to be significant. Steiner⁽⁵⁾ has noted from autopsy data gathered in Los Angeles that cancer of the large intestine is less than half as frequent in the Mexican as it is in the Caucasian, while the frequency rate in Negroes was slightly more than half that of whites. He noted the frequency to be especially low in Negro women. These are migrant Mexicans that were studied, and it would be valuable to know the frequency rate in that part of Mexico from which they came. Such a study on migrants has been carried out on the American Negro. Dorn and Cutler have noted that the low rate of cancer of the colon encountered in the Negro in the South changes to a rate comparable to the white when the Negro resides in the North (figs. 3 and 4). Such a study would tend to suggest environmental rather than racial factors in their explanation, although the evidence is not yet adequate.

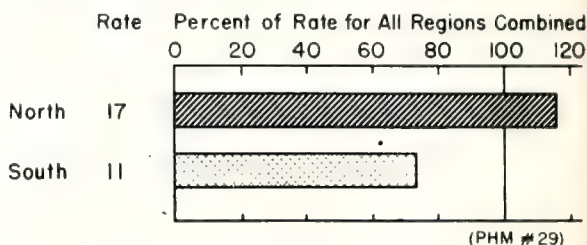
AGE-ADJUSTED INCIDENCE RATES FOR CANCER OF LARGE INTESTINE WHITE PERSONS, BY GEOGRAPHIC REGION, 1947



(PHM #29)

Fig. 3. Age-adjusted incidence rates for cancer of the large intestine. (Modified from Dorn, F., and Cutler, S. J.: Morbidity from Cancer in the United States, U.S. Public Health Service, monograph no. 29.)

AGE-ADJUSTED INCIDENCE RATES FOR CANCER OF LARGE INTESTINE NONWHITE PERSONS, BY GEOGRAPHIC REGION, 1947



(PHM #29)

Fig. 4. Age-adjusted incidence rates for cancer of the large intestine. (Modified from Dorn, F., and Cutler, S. J.: Morbidity from Cancer in the United States, U.S. Public Health Service, monograph no. 29.)

As can be seen, this brief epidemiologic survey has given us much valuable negative information but little positive help in regard to the etiology of cancer of the colon. We do find a suggestion that there is a factor, probably environmental, that exists in the South and tends to make the population slightly less prone to this type of tumor. It is apparent in the white male and female, but much more so in the Negro male and particularly in the Negro female. This factor disappears following migration to the North.

Development of the Tumor

Let us now examine the life history of the tumor itself in a search for clues. Depending upon so-called host resistance, cancer of the colon grows and invades with varying degrees of rapidity. If invasion is early down to the level of the muscularis mucosa, the hyperplastic area loses its



Fig. 5. Early cancer of the large bowel invading the muscularis.

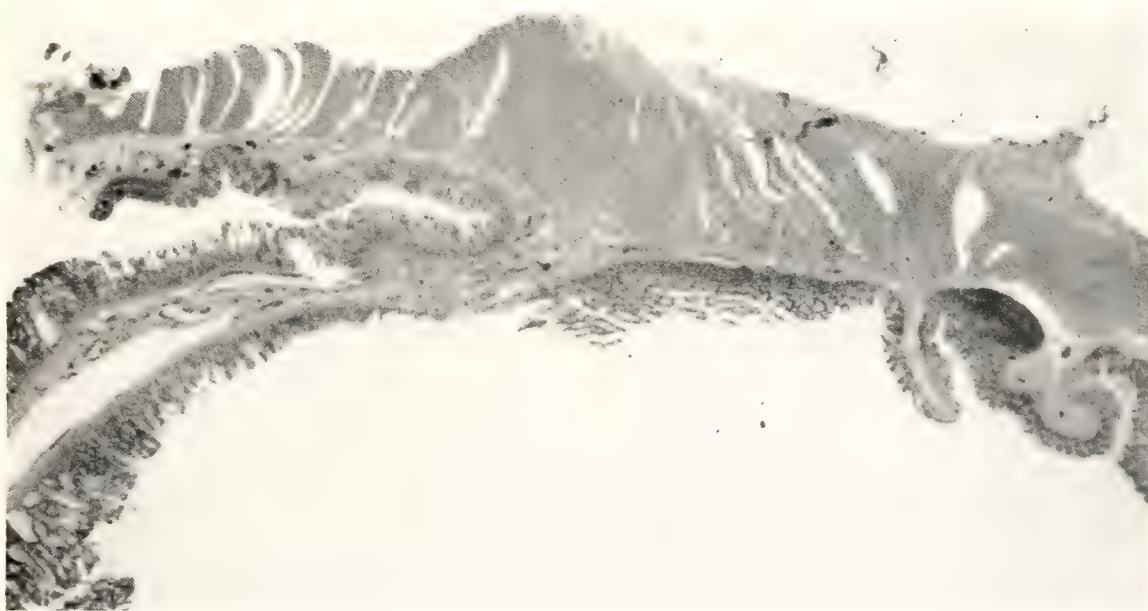


Fig. 6. Polyp of the large bowel from the same patient as in figure 5.

mobility and cannot be stretched to form a polyp (fig. 5). Instead, trauma and infection produce early ulceration and the lesion appears as a fungating or constricting can-

cer. If this invasion is not rapid, the hyperplastic area may become entrapped by a peristaltic wave and pulled until it is attached to the bowel only by a stalk (fig. 6).

Here growth may be impeded for a very long time. It is well to recall these two extremes of growth, for it makes us cognizant of the fact that polyps of the colon are not specific separate benign tumors, but are actually neoplasms whose growth potential has been altered by environmental factors. Too often they or new lesions eventuate into frank clinical cancer. Thus they are not premalignant lesions, but actually are cancers in an early stage of progression.

Adenomas and Polyps

It is thought by many and in all probability is true that all cancers of the large bowel present themselves first as such adenomas or polyps. Certainly, it is rare not to find one or more such adenomas in the colon adjacent the cancer, and it is also equally true that, when ulceration occurs, the lesion loses its adenomatous appearance. It becomes obvious, therefore, that all such lesions should always be completely excised and that the microscopic configuration of the tip of an adenoma or polyp is not nearly so important in determining the progression of the malignant process as is the presence or absence of invasion of the muscularis mucosa.

Polyposis

There are times when one encounters not one or several such polyps but finds the entire colon literally studded with them. This condition has been termed polyposis by Dukes, who has made several important observations on this disease. For perhaps two centuries it has been known that polyposis is associated with cancer of the colon. The literature now contains, and many of us have also seen, the records of families in which this disease seems to be concentrated to such an extent as to suggest transference by way of a dominant gene. It is insidious in onset, often not appearing until adolescence, and again not presenting itself clinically until hemorrhage or cancer supervenes. If careful routine studies are made of all relatives of the patient with polyposis, the frequency of polyps of which the carrier is unaware is usually amazing.

In studies of the site of isolated polyps, the frequency coincides quite well with the sites that are seen in cancer of the large bowel. This has been graphically revealed in a recent study by Smith⁽⁶⁾, who noted that, when the rectum was excluded, about

three fourths of the isolated polyps occurred in the lower portion of the left colon.

Genetic Factors

That single polyps may also be concerned with a dominant hereditary factor has recently been brought out by Richards and Wolf⁽⁷⁾. Encountering a large family group that presented an unusually high incidence of colon and rectal cancer, a family in which 33 per cent of the adults of the second generation had died of gastrointestinal cancer, they performed sigmoidoscopic and roentgenographic examinations of 62 of the third generation offspring. They found that 31 (50 per cent) had small adenomatous polyps in the rectum or rectosigmoid. Two of 12 fourth generation children examined also had polyps, and 14 of 20 third generation patients reexamined after a year or year and a half were found to have new lesions. Not only do these findings suggest a strong familial trait, but they also tend to confirm the clinical observation of the frequency of multiple cancers of the colon in the absence of apparent polyposis.

Promoting Factors

In spite of the accumulating evidence pointing to the presence of an hereditary factor in the formation of cancer of the colon, we are all impressed with how seldom it apparently operates as polyposis. Even when polyps are demonstrable, they are not as a rule present in infancy and young childhood; and certainly, as we have seen, the cancer does not appear until later in life. This suggests the presence of another factor in addition to the hereditary effect—namely, a promoting factor. We have previously noted this in our epidemiologic survey.

What this promoting factor might be is as yet unclear. The presence of ulcerative colitis has for a long time been known to be associated frequently with the development of carcinoma of the colon. A nice example of this association can be seen in a recent study from the Mayo Clinic⁽⁸⁾ in which 1,564 patients under the age of 50 years were followed for a period of 12 to 32 years. Cancer developed in 98 of these individuals, a frequency about 30 times greater than expected in the general population of this age group. And yet we note that patients in the tropics with amebic enteritis or chronic bacillary dysentery have

not shown a tendency to have carcinoma as have patients with ulcerative colitis.

Again, the predilection of carcinoma of the colon to appear in certain peculiar sites also denotes the presence of some sort of determining or promoting factor. Just now, however, its exact nature can only be surmised.

Conclusions

Our study then seems to reveal that cancer of the colon, one of the most frequent of the death-dealing cancers, may be related to two etiologic principles. One of these, the exciting factor, may have as its basis a fundamental alteration in a few or many of the epithelial cells of the bowel as a result of certain changes transmitted by inheritance. This change could possibly be in the chromosomes, and may even be quantitative. Another factor, the promoting factor, that brings the tumor into overt being

must also be present, and this likewise may be quantitative and is definitely related to time.

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Pathologic Physiology of Hypertension: The Role of the Arterioles

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WINSTON-SALEM

The central factor in hypertension is the state of the arterioles, because in them lie both the cause and effects of this condition. We shall define the arterioles functionally as the group of small precapillary vessels of the systemic arterial tree, which contribute the lion's share of the peripheral resistance. This group includes some vessels which are usually called small arteries. The peripheral resistance (R) is the ratio of the mean arterial pressure (P) to the blood flow (F), or $R = \frac{P}{F}$.

Classification

Hypertension, as we ordinarily use the term, means an elevation in the systemic arterial pressure. This presentation is chiefly concerned with those types having an elevation of diastolic pressure, but special attention will be given to essential hypertension and renal hypertension. The

following outline gives a classification of hypertensive conditions based on function and etiologic factors.

Classification of Hypertension

(Adapted from Merrill⁽¹⁾ and from Page⁽²⁾)

- I. *Systolic only*
 - A. Increased stroke volume

Thyrototoxicosis	Auriculo ventricular fistula
Anemia	Psychogenic
Heart block	Exercise
 - B. Increased aortic rigidity
 - Arteriosclerosis
- II. *Combined systolic and diastolic*
 - A. Cardiovascular
 - Coarctation
 - Hypervolemia
 - Polycythemia
 - Heart failure
 - B. Endocrine
 - Pheochromocytoma
 - Adrenal cortical hyperfunction
 - Acromegaly
 - Cushing's syndrome
 - C. Cerebral
 - Brain tumor

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Cardiovascular accidents
Diencephalic syndrome
Poliomyelitis
Neurogenic

D. Renal

Affections of the vessels	Congenital malformations
Glomerulonephritis	Genitourinary tract obstruction
Pyelonephritis	Toxemia of pregnancy
Intercapillary glomerulosclerosis	Malignant hypertension

E. Essential (unknown)

Arterial and Arteriolar Changes

In all hypertensive states wherein the diastolic pressure is elevated, the total peripheral resistance is found to be increased. This means that the arteriolar channels throughout the body are narrowed. Spasm of the small arteries can be seen in the retina of early hypertensive patients. Whether the etiologic agent of this spasm is a humoral substance, a neural influence, or a higher setting of all the mechanisms responsible for a normal blood pressure, its action appears primarily to affect the smaller arterial twigs or arterioles.

These vessels are not only acted upon by the hypertensive agent but are, in turn, affected by the pressure itself. It is the dilemma of this situation which often causes the disease to persist once it has begun, and accounts for the progressive deterioration of the patient.

After years of hypertension the smooth muscle of the arterioles hypertrophies and becomes fixed by a sclerosis of the media with a narrow lumen. Scattered occlusion of the small vessels results from severe sclerosis and necrosis. In other focal areas where the arterioles fail to buffer the rise in arterial pressure, capillary hemorrhages and edema occur.

In the larger arteries, the atherosclerotic process is hastened. Weakening of their walls and occlusion of their lumen lead to the complications of cerebrovascular accidents, coronary occlusion, dissecting aneurism, and peripheral vascular disease. Renal failure results usually from the diffuse arteriolar nephrosclerosis.

The arterioles of the kidney are in a particularly strategic position. Normally they pass 20 per cent of the cardiac output from arteries to veins and thus are in a position to alter materially the peripheral resistance. In addition, they control the blood

flow through an organ capable of elaborating vasospastic substances when its flow is diminished.

Renal Changes Associated with Chronic Hypertension

Table 1 illustrates the progressive hemodynamic changes occurring in the kidney with chronic hypertension.

Table 1
Renal Functional Data in Hypertension⁽³⁾

Function	Normal	Early	Established	Malignant
MAP	100	126	154	176
RPF	674	630	393	216
GFR	128	130	93	61
FF	0.19	0.20	0.24	0.29
RA	1.1	1.7	3.7	5.6
RE	1.0	0.8	1.4	1.6
R	2.2	2.8	5.1	7.2

Figures are the average values found in cases studied. MAP=mean arterial pressure in mm.Hg. RPF=renal plasma flow in ml. min. GFR=glomerular filtration rate in ml./min. FF=filtration fraction. RA=afferent resistance. RE=efferent resistance. R=total renal vascular resistance.

Summarizing all the clearance measurements made in hypertension, one may say that the blood flow diminishes steadily, while the glomerular filtration rate is at first upheld and later falls, but at a slower rate than the fall in renal blood flow. The filtered fraction of plasma steadily increases, but is not sufficient to maintain the glomerular filtration rate in the later stages of the disease. With the increased arterial pressure, the vascular resistance increases mainly in the preglomerular or afferent arterioles. The pathologist has long emphasized the changes in the afferent arterioles as the cardinal microscopic finding in this disease. These functional and pathologic findings may best be understood in the light of normal physiologic mechanisms studied experimentally.

When the arterial pressure is increased above normal in experimental animals, the renal blood flow diminishes while the glomerular filtration is unchanged or increased slightly⁽⁴⁾. These changes are parallel to the findings in early hypertension, and indicate constriction of the afferent arterioles simply as a response to increase in pressure. This mechanism of afferent constriction in the face of changing arterial pressure may be viewed as a means of buffering the glomeruli so as to maintain a normal glomerular filtration pressure. This intrinsic mechanism has been called "autonomous," because

it operates independently of the sympathetic nervous system.

Later and Final Phases of the Hypertensive Process

Let us now consider the established phase of the hypertensive process. The pressure has continued to rise and the blood flow decreases rapidly. The falling glomerular filtration rate indicates failure of the mechanisms which control it. The histology of the kidney gives an answer, as the afferent arterioles consistently show the changes of arteriolar nephrosclerosis. If we consider the functional state of the kidney to be a summation of the action of the intrinsic mechanism and the hypertensive etiologic agent, it is small wonder that these arterioles above all others in the body display this structural change. From this viewpoint the longstanding and intense vasoconstriction constitutes the pathogenesis of arteriolar nephrosclerosis. This structural change then leads to obliteration of the lumen, and glomerular filtration rate and renal blood flow diminish.

The closing chapter in the natural history of hypertension is malignant nephrosclerosis, an apt term for the often rapid worsening of the patient's health. Cardiac and cerebral vascular disease complicate the picture. In the retinal vessels we are afforded a glimpse of the changes occurring in the small vessels throughout the body. Here we see hemorrhages, exudates, and papilledema. The urine contains red cells and protein. If the patient does not succumb to cardiac or cerebral complications, he dies in uremic coma. All the complications in the hypertensive process originate in arterial or arteriolar disease.

No adequate explanation for this accelerated phase has been brought forward. It is possible, however, that it results from a nephrogenic factor. Up to this point we have explained all the findings in the kidney as resulting from hypertension; but now we believe arteriolar disease may in turn produce further hypertension by the elaboration of one of the humoral hypertensive substances of the kidney. The vicious cycle may be diagrammed as in figure 1.

When the patient gets into this set of circumstances, there is no escape unless one of the links in the chain is broken. One link that we now have the tools to attack is, of course, the hypertension itself. This is

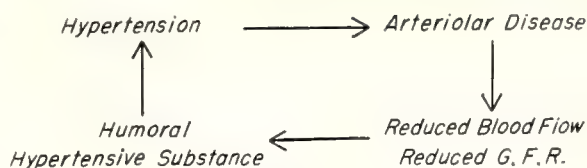


Fig. 1

the subject of anti-hypertensive drugs and surgical sympathectomy.

Renal Hypertensive Mechanism

Considering now the renal types of hypertension, let us discuss the hypertensive mechanism which is so often seen in the primary diseases. The classical viewpoint, exemplified by the Goldblatt kidney, is that reduced blood flow causes ischemia, and ischemia causes the elaboration of a hypertensive substance. There has been no direct demonstration of such a substance in human beings, but indirect evidence for it is overwhelming.

We believe, however, that this renal hypertensive mechanism arises from a reduced glomerular filtration rate rather than from ischemia. This thesis is based on the premise that the circulatory mechanisms peculiar to the kidney are oriented primarily for the homeostasis of the glomerular filtration rate. Some of the supporting arguments for this thesis may be presented here. The renal circuit is more generously endowed with blood flow than is necessary for adequate respiration. This excess blood, we believe, is for the purpose of maintaining glomerular filtration; but when this reserve fails, the humoral hypertensive mechanism is brought into play. Other physiologic evidence is afforded by the renal vascular response to polycythemia⁽⁵⁾. Here the glomerular filtration is maintained in part by afferent dilatation sufficient to allow an increase in blood flow in spite of increased viscosity. A normal filtrate is extracted from a reduced plasma flow (replaced by cells) by elevation in the filtered fraction.

Clinically, hypertension is more closely associated with the clinical affections of the kidney in which the renal disease primarily affects glomerular filtration. These are glomerulonephritis, lipid nephrosis, intercapillary glomerulosclerosis, and toxemia of pregnancy. Clearance determinations in all these conditions associated with hypertension demonstrate greater de-

crease in glomerular filtration than in blood flow, and indeed often no reduction in blood flow.

Summary

Attention has been directed to the arterioles as the keystone in the pathologic physiology of hypertension. We have shown how the clinical findings and complications of hypertension result from sclerosis of these vessels and from the arteriosclerotic and atherosclerotic processes in the larger arteries. We have presented a classification of the hypertensions based on etiology and pathogenesis.

We have shown how the early renal changes in hypertension may be regarded as a physiologic response, resulting in pathologic changes of the arterioles and thence causing parenchymal disease and renal failure.

We have high-lighted glomerular filtration as the parameter the renal intrinsic

vascular and humoral mechanism seeks to protect. Toward a more meaningful clinical interpretation, we have presented a hypothesis that the mechanism of renal hypertension is based on reduced glomerular filtration rather than on ischemia.

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The Medico-Legal Interprofessional Code and Its Practical Application in Personal Injury Litigation

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ROCKY MOUNT

For a number of years, it has been my fervent desire as an attorney to establish a constructive working relationship with the members of the medical profession—a relationship based on mutual trust and respect. Four years ago a medico-legal institute was held at Duke University. There, in a spirit of constructive criticism, two doctors issued a telling indictment against the attorneys of North Carolina, which is still ringing in the ears of many of us who were present. The indictment was based on the experiences of doctors called to testify in cases involving personal injuries. I am sure that most of the attorneys present who truly searched their souls would have had to plead guilty to the following charges:

1. Failure to study the medical problem involved in order to assist the doctor in presenting his testimony.

2. Failure to discuss the case fully with the doctor before trial.

3. Failure to make suitable arrangements for the client to pay the doctor for his time and services.

4. Failure to arrange for a doctor to be permitted to testify as soon as possible upon arriving at court.

5. Failure to advise doctors sufficiently in advance as to when it would be necessary to come to court.

6. Failure to consult the treating physician before arranging for a specialist to examine the client.

7. Failure to prepare the doctor for cross-examination.

8. Failure to convince the doctor by word and deed that the attorney is interested only in presenting the true facts to the court and jury.

Since that institute in 1952 the attorneys of North Carolina have been working to improve their method of dealing with medico-legal problems. A committee of the

Read before the Edgecombe-Nash Medical Society, Rocky Mount, September, 1956.

*Member of the North Carolina Bar Association.

North Carolina Bar Association, working with a committee from the North Carolina Medical Society, has endeavored to work out a uniform procedure for cooperation between doctors and attorneys, which will benefit not only the members of our professions, but above all the injured parties. The Medico-legal Interprofessional Code is the result of their work. This code can be of great benefit to the citizens of North Carolina. If we, as attorneys and doctors, will adopt it as the ground rules for our working relationship, it will become the cornerstone of a new era in the historic struggle to establish true medical facts—a struggle which should lie at the heart of all properly conceived and judiciously conducted personal injury trials.

Next to those who are actually engaged in some phase of the legal profession, doctors are perhaps more essential than any other group to the effective administration of civil justice in this country. With the gigantic increase in industrial machinery and automobiles, more than nine million persons are being injured or killed annually by accidents. The annual cost of these accidents exceeds eight billion dollars. You doctors know better than I of the suffering of the injured and of their families. Many of these accidents are caused by the negligence of someone other than the victims. Consequently, the proportion of lawsuits brought by injured persons has increased steadily *until today approximately 75 per cent of all cases now pending in the courts throughout the country involve personal injuries*. Furthermore, it has been estimated that in the presentation of a personal injury suit, 75 per cent of the attorney's work involves, directly or indirectly, the medical aspects of the case. In the presentation of these aspects the attorney must ultimately depend on the doctor. Many of you doctors understandably will regard this as bad news, since for you it inevitably means increased responsibility without a proportionate increase in creative satisfaction in the central area of your professional interest. I am confident, however, that in presenting medical information to the court, you can not only render a great service, but will enjoy a genuine creative satisfaction in an area which is at least allied to your central interest. It will undoubtedly bring a measure of fulfillment

to the basic humanitarianism which has always characterized your profession. You can assist the patient to recover from the economic losses resulting from his accident, in addition to healing his physical injuries.

Principles Underlying the Jury System

Before discussing the code and its practical application, I shall make a few brief observations about the courts and the principles underlying the jury system:

1. *Your right to be honest*: I regret to say that doctors are sometimes surprised to learn that lawyers want them to be honest in their testimony. It is my abiding conviction that with but few unfortunate exceptions attorneys genuinely want you to be honest in every respect when you give medical testimony in court.

2. *The adversary system*: In the courts of this land, we employ the adversary system for determining the rights of parties to a dispute. We believe that it is essential to a free society that every person be represented by a competent advocate and be given a full and fair hearing before his will is subjected to the will of another, and before his claim or rights are disposed of. Thus we have evolved the adversary system, with partisan attorneys advocating the cause of each party to the dispute and an impartial jury deciding the issues. The judge supervises the conduct of the trial and instructs the jury as to the law. This system may leave much to be desired, but history and experience reveal that it is the best system we know for adjudicating the rights of free men in a free society.

3. *Jurors*: Most of the cases in which medical evidence is presented are decided by jurors. The members of the North Carolina Bar are thoroughly convinced that, contrary to the general belief, the overwhelming majority of jurors in civil cases are conscientious, and earnestly seek to do justice according to the law. Furthermore, those jurors who are not conscientious seldom participate in the deliberation of the others, and consequently have little effect on the verdicts rendered.

4. *The rules of evidence*: The rules of evidence govern the type of information which can be presented in court. The purpose of these rules is to enable the jury and court to hear all evidence which is relevant or unduly speculative.

5. *The amount an injured person is entitled to recover under the law:* Every case in which an injured person sues and is entitled to recover damages under the law involves the question of how much compensation he is entitled to receive. In the trial, the judge instructs the jury as to the law, but the law which he instructs them to follow is very general. It provides that the injured person should have a "fair and reasonable compensation" for expenses and for all injuries (including physical and mental suffering which he or she has undergone in the past, is undergoing at the present, or is likely to undergo in the future) which were caused, to any extent, by the negligent conduct of the other person. So, in the final analysis, an injured person is entitled to recover from the person who injured him whatever amount the jury thinks is fair and reasonable.

Most law firms in North Carolina represent both injured plaintiffs and insurance company defendants. From our experience in representing both plaintiffs and defendants, we have found that there is generally ample room for an honest difference of opinion as to how much the injured person should recover and the insurance company should pay under a specific set of facts. This question can always be decided by a jury. However, we make a serious and systematic attempt to settle every case which comes into the office on the basis of an educated guess as to what the jury will consider fair and reasonable.

6. *Malpractice suits:* Suits against doctors for malpractice constitute one of the most unpleasant phases of the practice of law. An objective appraisal of the actual situation however, reveals that malpractice suits are extremely rare. We find that doctors have a far greater fear of fraudulent claims against them than they do of valid claims. This fact can easily be appreciated, for certainly half of the damage is done to the doctor's reputation by the mere institution of a suit against him, even though it is without valid basis. I sincerely believe that if the members of the medical and legal professions learn to work together in mutual trust and consideration, the great majority of the claims which are without valid basis in law and fact will never materialize, but will be effectively discouraged by the attorneys.

The Interprofessional Code

The preamble of the Medico-legal Interprofessional code states:

Acknowledging that a substantial part of the practice of law and medicine is concerned with the problem of persons who are in need of the combined services of a lawyer and doctor: that the public interest and individual problems in these circumstances are best served only as a result of cooperative efforts of all concerned; that members of both the legal and medical professions share an obligation to the individual and to society: we the members of the North Carolina Bar Association and the Medical Society of the State of North Carolina do adopt and recommend the following declaration of principles as standards of conduct for attorneys and physicians in inter related practice.

Section B of the code deals with *medical reports requested by attorneys*. Since medical information regarding patients is privileged information, the attorney should always furnish the doctor or the hospital with a written authorization, signed by his client, for the requested information. This authorization is purely a statement that the attorney represents the client and that the client is willing for his medical records to be divulged to him. When requesting medical reports, the attorney should clearly specify the information desired.

Section B of the code also emphasizes that *ample time should be allowed for a physician to examine a patient and make a report*. It is always more satisfactory to have the client examined several months before the trial. If this is not possible, attorneys are generally agreed that the doctor should be given a minimum of two weeks before the trial in order to examine the patient, make his report, and prepare to appear in court as a witness.

Section C of the code deals with the *preparations which the attorney and physician should make for giving medical testimony in court*. It is pointed out that the attorney and physician, at their mutual convenience, *should hold a conference*, at which all matters about which the doctor will be questioned as a witness should be disclosed and discussed fully. I cannot conceive of any situation involving the presentation of medical evidence in court to lay jurors wherein a conference of this sort is not absolutely necessary.

Application of the Code

In order for this code to have real significance for you, let me illustrate its practical application by describing briefly an approved procedure for handling the preparation of the medico-legal aspects of a personal injury case.

The attorney's preparation should begin before the conference with the physician. The attorney first has to prepare himself for that conference. He should go to the hospital, present the written authorization, and examine the patient's chart, x-ray pictures and other medical records. He should abstract these records from beginning to end, make a list of the unfamiliar medical terms appearing in the records and define them. He should then consult Grey's "Medical Text for Attorneys" and try to get a general knowledge of the nature of his client's injuries, and of all probable complications or secondary conditions from which the client may suffer as a result of the injury.

He must then look at the law. He must determine to what extent evidence concerning all of these factors will be admissible in the trial of the case. Having studied the charts, medical texts, the law, and considered ways by which to illustrate the medical testimony, he should make a list of questions as an outline for the conference with the doctor. After the appointment has been made, it may be helpful to mail a copy of the questions to the doctor for study before the conference. At the conference the doctor can usually suggest ways in which medical evidence can be presented to the jury in a simple graphic manner.

This brings us to a fascinating phase of trial practice, one which presents a constant challenge to attorneys—and to doctors also. This is the use of what we call "demonstrative evidence." "Demonstrative evidence" is to the lawyer what teaching aids are to the medical expert. By and large, the medical expert who can make the facts clear to the jury is the one who is usually correct and the one most likely to be believed. Thus justice is greatly fostered in personal injury cases by the skillful use of demonstrative evidence. A medical teacher who did not use these aids would be at least 450 years behind the times, and so would the lawyer who tried a personal injury case without them.

Types of demonstrative evidence generally used are: pictures, x-ray films, slides, diagrams and drawings, models of the parts of the body injured, parts of the skeleton, and any apparatus used in treatment, such as slings and traction braces—anything which the jury can see and gain thereby a more concrete understanding of what is said.

It is important at all times for both attorneys and doctors to keep in mind that *the sole justification for the use of demonstrative evidence is to illustrate specific testimony.*

Following the conference with the doctor, *the attorney should draw up the exact questions which he plans to ask the doctor on the witness stand.* It is a good idea to send a copy of these questions to the doctor. Having the questions in advance enables him to consider them at leisure and to phrase his answers in such a way as to convey his central conviction clearly and at the same time to include any reservations which he may have.

The interprofessional code points out that the physician should be notified if he is to be subpoenaed. The usual purpose of serving the doctor with a subpoena is not to force him to go to court against his will, but to enable the attorney to procure a continuance of the case if the doctor is unable to appear in court.

In the most important single section of the code it is clearly set out that *under no circumstances should an attorney seek or attempt to have the physician color or shape his expert testimony* in such a manner as to favor the interest represented by the attorney. If I accomplish nothing more than to help doctors realize that the great majority of North Carolina attorneys subscribe wholeheartedly to this section of the code, I will be deeply gratified. If this were not true, and if we attorneys did not want doctors to tell the truth as they believe it to be, then all our creative energies would be dedicated to the perpetuation of fraud, and our professional existence would be but a living mockery.

The code also deals with the knotty problem of getting the witnesses, the parties, the attorneys, and all other persons necessary to the trial of a case together at one time. This is one of the great difficulties in a trial, for which I can foresee no prac-

tical remedy. Much of the inconvenience to the physician can be relieved, however, *by notifying him as far as possible in advance* when he will be needed to testify, and by keeping him informed of any changes. So that he will not be kept waiting, it has become the general practice in the courts of our state *for the judge to permit the doctor to testify within a few minutes after he arrives in the courtroom*, even if this means interrupting the testimony of some other witness.

Item seven of the code deals with *cross-examination*, which is an important matter of concern to you all. As the code points out, the purpose of cross-examination is not to browbeat the witness. You can rest assured that no judge is going to permit an attorney to abuse the right of cross-examination when a doctor is on the witness-stand. The legitimate purpose of cross-examination is to bring out facts which will reveal to the jury that neither the witness nor his opinions are infallible. In medical testimony this is done by bringing out the fact than an examination could have been more thorough, or that an opinion other than that held by the witness could be consistent with the facts of the case. If, in his conference with the doctor before the trial, the attorney will prepare the doctor for cross-examination, the doctor will be prepared to bring out most of these points on direct examination.

I think it is fair to say that much of the fear of cross-examination is unfounded.

Actually, in most lawsuits there is no basic difference of opinion as to the medical aspects of the case, and the major problem in testifying is merely that of presenting medical evidence and medical opinions to the jury in a clear and understandable manner.

The code rightly deals with compensation for services of physicians in medico-legal matters. Happily, the attorneys have finally come to realize that a physician is entitled to reasonable compensation for all professional services rendered. This includes the time and energy spent in furnishing reports, attending conferences, studying the problem of how a technical matter can be demonstrated to the jury, and any time lost from standing by to appear in court. Furthermore, it is now customary for the court to provide for an expert witness fee to be paid out of the court costs *a fee which is realistic and in keeping with the actual value of the doctor's time and talents.*

Conclusion

The Medico-Legal Interprofessional Code represents a magnificent achievement in spelling out the mutual responsibilities of attorneys and physicians to whom people in need of legal and medical services have turned. If the doctors and attorneys of North Carolina can make this code the solid cornerstone of their working relationship, I sincerely believe that it will be a vital help to the members of both professions as we seek to discharge our mutual obligations to the individual and to society.

The psychic stress that precipitates the formation of a duodenal ulcer may be acute or chronic. The factor of acute stress is seen in such statistics as came out of London during the "blitz." At that time, about three times as many patients were admitted to London hospitals with perforations as in the preceding and succeeding years.

In most instances, it is chronic psychic stress that results in ulcer formation. The common factor of the many forms of such stress is the production of a continuous high level of tension which usually is under excessive personality control and has minimal outlets or release mechanisms. This high level of tension results in overstimulation of the adrenal cortex. The resulting vagal and hormonal stress stimulates the formation of the duodenal ulcer.—Kraimer, S. H.: *Psychiatric Factors in Therapy of Duodenal Ulcer*, Illinois M.J. 110:158 (Oct.) 1956.

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"The prime object of the medical profession is to render
service to humanity; reward or financial gain is a subordinate
consideration. Whoever chooses this profession assumes the
obligation to conduct himself in accord with its ideals."—Prin-
ciples of Medical Ethics of the American Medical Association,
Chapter 1, Section 1.

DECEMBER, 1956

1956

As the year's end draws near, it is cus-
tomary and natural to look back upon its
noteworthy events. Recently the so-called
Cold War which began soon after the end
of World War II flared into a few hot
spots. Nevertheless, some reasons for op-
timism can be found. The prestige of the
Soviet Union is much lower at the end of
the year than at the beginning, while the
prestige of the United Nations is higher.
It is true that the relations between the
United States and its strongest allies have
been strained. The stand of the United
States against the invasion of Egypt by
Israeli, England, and France, however,

proved that our government is consistent
in opposing the use of arms until the United
Nations has been given a chance to settle
quarrels between nations. Furthermore,
the United Nations now commands more
respect than at any previous time. It may
well prove to be the fulfillment of Tenny-
son's vision of "the Parliament of
man, the Federation of the World." It is
too soon yet to be sure of the outcome, but
at least there is reason for a guardedly
optimistic prognosis in the world situation.

* * *

Our nation has survived another election.
Again the enormous personal popularity of
President Eisenhower was demonstrated
convincingly — even though both houses
of Congress are controlled by Democrats.
As was pointed out editorially last month,
the fact that the independent voter has be-
come the decisive factor in our national
elections is as it should be.

* * *

For the first time in many years a gover-
nor was elected to succeed himself in North
Carolina. The popularity of Governor
Hodges was showed by the large vote cast
for him.

One of the most constructive measures of
Governor Hodge's administration is the
proposed revision of North Carolina's pres-
ent antiquated and inequitable tax struc-
ture. It is certain that our present system
has discouraged many industries from mov-
ing into the state, and has been responsible
for sending some of our best citizens out
of the state. As a result, our neighboring
states are going ahead of North Carolina
in many ways.

The recommendations of the Tax Com-
mission appointed during the last Legisla-
ture are sound. If enacted into law — as
they almost certainly will be — they should
make for real progress in the future.

The final result of the Supreme Court's
anti-segregation decision remains to be
seen. That as yet we have had no violence
in our schools is a cause for thankfulness.
Let us pray that the final result may be
peaceful.

Our State Medical Society has gone as
far as possible—even changing its meeting
place—in order to give Negro physicians
an opportunity to profit from the scientific
sessions of the Society. We can only wait
to see how this works out.

* * *

Medicine continues to advance, even though there are still many unsolved problems. The American Medical Association and our State Society each has the largest number of members in its history.

Advances have been made in the surgery of the heart and blood vessels, as well as in other fields. The Salk vaccine now seems to be safe and effective. It is unfortunate that the premature publicity given it, and the mistakes made in preparing some of the early batches, discouraged many parents—and doctors—from accepting it. Now that the supply is adequate and the vaccine safe, it is not too much to hope that polio will come under control as have diphtheria and pertussis.

With the lessened importance of infections, the degenerative diseases are demanding more and more attention. The increasing proportion of older people is creating a problem that becomes bigger every year. The American Medical Association has recognized its responsibility in the matter by the appointment of a Committee on Aging, and by devoting a whole morning at the Clinical Session in Seattle to a panel discussion on Problems of Aging.

One cause for concern is the increasingly widespread use of antibiotic, steroid, and tranquilizing drugs. These all have their places in the practice of medicine, but should not be used without due consideration.

* * *

In this final issue of the year the editorial board and editorial staff of the NORTH CAROLINA MEDICAL JOURNAL extends to our readers the time-honored but heartfelt message: best wishes for Christmas and the New Year!

* * *

OUR SCHOOL SYSTEM

From the beginning of our republic, education has been recognized as a cornerstone of our representative form of government. The survival of the most nearly true form of democracy that the world has ever know is credited to the widespread educational program which has prevailed since the Founding Fathers gave the blueprints for our nation's future growth.

At one time the people of the South were afraid of universal education. The educa-

tion of the Negro slave was forbidden by law. Fortunately the injustice and inhumanity of that narrow, prejudiced view was recognized long ago, and the white people of the South have contributed more than those of any other section to provide schools for Negroes as well as whites, and attendance has been required by law of all the children of both races between 6 and 16 years of age.

That the school system is far from perfect is evidenced by such scathing criticism as appeared in the September *Ladies' Home Journal*. An editorial and two articles by teachers, in addition to a panel discussion by a number of prominent educators, all pointed out the grave defects in our public schools all over the nation.

It is to be hoped that the present furor over segregation and integration will not distract the attention of those responsible for the standards of our elementary and high schools. It may be that the threat to the school system of our state will serve to focus attention upon failure of the elementary and high school to prepare students for higher education in our colleges and universities.

Certainly the cruel and vindictive mobsters who are doing their best to defy the law by intimidating a few frightened Negroes are not good advertisements for our present school system.

* * *

THE MEDICO-LEGAL INTERPROFESSIONAL CODE

One of the most important of the many accomplishments of Dr. James P. Rousseau's administration was the appointment of a joint committee from the North Carolina Bar Association and the State Medical Society to formulate a code for the guidance of both lawyers and physicians in dealing with litigation involving personal injury.

The members of the committee from the Bar Association were:

Kester Walton, Asheville, chairman
Fred Folger, Mount Airy
Joseph C. Moore, Jr., Raleigh
Armistead Sapp, Greensboro
John Small, Charlotte
Frank E. Winslow, Rocky Mount

The physician members were:

T. S. Raiford, M.D., Asheville,
chairman
R. L. Garrard, M.D., Greensboro
Thomas W. Baker, M.D., Charlotte
John F. Owen, M.D., Raleigh
K. B. Pace, M.D., Greenville
Bennette B. Pool, M.D., Winston-Salem

The code which this committee recommended has been unanimously approved by both the State Bar Association and the State Medical Society, and copies of it have been sent to every member of the Society.

Attorney William Thorp, Jr., of Rocky Mount discussed the code before the Edgecombe-Nash County Medical Society at its September meeting. His address was so favorably received that, at the suggestion of a doctor, it was sent to this JOURNAL for publication. It will be found on page 564 of this issue.

* * *

DR. WILLIAM A. MARLOWE

Dr. William A. Marlowe of Walstonburg, who died on September 29, deserved a tribute for the heroism which he displayed in overcoming a handicap that would have discouraged most men from attempting to practice medicine. Soon after he was graduated from Jefferson Medical College in 1919, his hearing began to fail rapidly as the result of chronic otitis media, which began during his student days. For a time a hearing aid gave some help, but by 1934 it was useless, and for the rest of his life he was totally deaf. He learned to read lips, however, and to use his remaining senses more. "He began to notice the little gestures, the movements of the eyes, the facial expressions of the sick as compared to the well. He noticed the movement of the mouth and lips, the gait and posture of the body, the nervous symptoms and the general attitude of the patient. He began to pick up sounds by hands on the chest while the patients were talking or breathing."

In spite of his deafness, Dr. Marlowe built and maintained a good practice. He also managed a 500-acre farm, and had taken an active part in his church and com-

munity, as well as in his county and State Medical Societies. It has been said of him that he was perhaps the only man in North Carolina who ever practiced general medicine for 22 years without hearing a sound of any kind, and did it successfully.

Dr. Marlowe has left a proud heritage for his family. It is good to know that his youngest son has begun the study of medicine. May God grant him a goodly portion of his father's courage, and spare him from his father's handicap.

* * *

HELP FOR THE HOPELESS

The *Rhode Island Medical Journal* for September published a unique and helpful forum which was presented at the annual meeting of the Rhode Island chapter of the Academy of General Practice. Dr. C. A. Smith talked of the attitude to be taken toward infants and children with fatal diseases, or who are mentally defective.

Dr. Earle M. Chapman discussed the case of the one who, in the prime of life, is found to have relentless congestive heart failure or such an incurable disease as leukemia, metastatic cancer, or Hodgkin's Disease.

The final discussion, "Making a Graceful Exit," was to have been presented by Dr. Peter Pineo Chase, who died shortly before the forum was presented. Very fittingly, his colleague, Dr. Irving A. Beck, who took his place, quoted from a draft of the talk Dr. Chase was to have made. Dr. Chase's closing sentences were:

Even in this era of wonders, the great majority of ills of the flesh are either self-limited or are going to progress despite all our scientific knowledge. Humbly bearing this in mind, let us help nature, when we can, to expedite cures; with discretion let us keep our hands off unless we see a reasonable chance of helping, and with fervor and kindness help our hopeless friends to progress smoothly and gracefully through their last exit.

Dr. Chase's friends will agree wholeheartedly with Dr. Beck's comment that in his last illness he lived out the philosophy summarized in his final message and that "Certainly no man ever made a more graceful exit from life."

President's Message

MEDICARE

On June 7, 1956, the President of the United States signed Public Law 569 authorizing medical care for the dependents of members of the uniformed services to become effective December 7, 1956. "The purpose of this act is to create and maintain high morale throughout the uniformed services by providing an improved and uniform program of medical care for members of the uniformed services and their dependents."

The uniformed services include not only the military service but the uniformed Public Health Service, Coast and Geodetic Survey, and the Coast Guard. The Department of Defense is the administrative agent for the military services, and the Department of Health, Education, and Welfare for the other uniformed services.

On July 28, 1956, a meeting was held in Chicago between representatives of the Department of Defense Task Force, the American Medical Association, and the various state and territorial medical societies. The representatives left this meeting with a very positive impression of the willingness of the Department of Defense to cooperate with the medical profession and of the desire to have the actual professional management of the program as much in the hands of the profession as feasible. Representatives were requested to obtain from their state and territorial groups a statement of willingness to furnish home town medical care under the program; to designate a fiscal agent for the administration of the program for that unit; and to furnish a tentative fee schedule for the unit.

On September 30, 1956, the Executive Committee of the Medical Society of the State of North Carolina approved the recommendations of its Medicare Committee as follows:

- (1). That the Department of Defense be notified through the A.M.A. that the Medical Society of the State of North Carolina would participate in and cooperate with the program for furnishing dependents medical care and that the Hospital Savings Association be designated as the fiscal agent for the State.
- (2). That a tentative fee schedule be presented comparable to that of the \$6,000 limit of the North Carolina Doctors' Plan of Blue Shield,

this tentative fee schedule to be presented after some inequities were corrected by the Medicare Committee and consultants from the various speciality groups appointed by the President of the State Medical Society.

On October 29, 1956, a delegation from the Medical Society of the State of North Carolina met in Washington with a group from the Department of Defense and signed a contract for the implementation of the program from December 7, 1956, to July 1, 1957. On November 11, 1956, the state Medicare Committee met in Raleigh with the appointed representatives from the various speciality groups and a tentative fee schedule, seemingly satisfactory to those groups, was prepared. On November 18, 1956, a delegation from the Medical Society of the State of North Carolina presented this fee schedule to representatives of the Department of Defense in Washington. With some give and take on both sides, the fee schedule was contracted for in order to start the program on December 7, 1956. This fee schedule is subject to change, with the approval of both parties, and is contracted for until July 1, 1957.

Implementation of this program has been an enormous task for the Department of Defense, the A.M.A., and the state and territorial medical societies. Many mistakes have been made, and many inequities still exist. The work has been done with a resolve on the part of all three groups to protect the traditional patient-physician relationship and to maintain local medical customs and practices.

Only wives and children are eligible for dependent care in civilian facilities. It has been emphasized by the Department of Defense that this group, estimated at 800,000 at the onset of the program, will have full and free choice between civilian and military services.

At the meeting in Chicago in July, the Department of Defense left the distinct impression that these dependents were to be classed not as a limited income group, but as average pay patients. Recently in Washington, representatives of the Department of Defense stated that more than 82 per cent of service men eligible for this program had an income of less than \$4,300

BULLETIN BOARD

COMING MEETINGS

North Carolina Chapter of the American College of Surgeons—Duke University, Durham, January 5, 1957.

North Carolina State Board of Medical Examiners—The Barringer Hotel, Charlotte, January 14, 1957.

Stuart McGuire Lecture Series and Symposium on Cardiology and Cardiac Surgery—Medical College of Virginia, Richmond, January 23-25.

Third Annual Merrell Symposium on Constructive Medicine in Aging: Cardiovascular Disorders in the Aged—Netherland Hilton Hotel, Cincinnati, Ohio, January 17, 1957.

Seventeenth Annual Congress on Industrial Health—Biltmore Hotel, Los Angeles, February 4-6, 1957.

Institute on Rehabilitation Center Planning—Morrison Hotel, Chicago, February 25—March 1, 1957.

Academy of Medicine of Cincinnati, One Hundredth Birthday Party—Music Hall, Cincinnati, February 27-March 5, 1957.

National Conference on Rural Health—Brown Hotel, Louisville, Kentucky, March 7-9, 1957.

College of Medical Evangelists School of Medicine, Alumni Postgraduate Convention—Los Angeles, March 10-14, 1957.

Chicago Regional Committee on Trauma of the American College of Surgeons, Course on Fractures and other Trauma—John B. Murphy Auditorium, Chicago, April 10-13, 1957.

NEWS NOTES FROM THE

DUKE UNIVERSITY SCHOOL OF MEDICINE

A young man from Free China now studying here at Duke Hospital will return to his native country next September to head the first centralized medical record library in the Orient.

His name is Shih-ching Huang. Brought to America by the International Cooperation Administration, he now is gaining knowledge that will better equip him for the post of medical record librarian at Taiwan National University Hospital and will enable him to train other Taiwanese in this profession.

* * *

A recent survey of Duke University medical alumni bears out national statistics that reveal internal medicine and general surgery as the largest specialized fields of medical practice.

Some 300 M.D.'s who were graduated from the Duke School of Medicine during the five-year period 1945-1949 were queried by the school's secretary as to their present occupations.

Nearly 23 per cent are now practicing internal medicine, while 17 per cent are general surgeons. Pediatrics claims 12 per cent of the doctors.

per annum and should be classified as a limited income group. The Department of Defense has used the California Medical Association's relative value schedule as a national guide for setting fees. In some instances, the fee set was between the North Carolina Blue Shield Program limit of \$4,200 and the \$6,000 limit. However, in even more instances, a slightly higher fee than the North Carolina \$6,000 program has been set. It is believed by those representatives of the Medical Society of the State of North Carolina who cooperated with the Department of Defense in setting the fee that the schedule agreed upon is equitable and fair for both doctors and patients. There will be many instances in difficult and complicated cases where the fee set cannot be used, but charges will have to be made by report. It is incumbent upon the medical profession of this entire country to consider the public relations value of cooperating with this program and of preventing abuses of it.

Under this program, outpatient care is furnished in military hospitals but not in civilian hospitals. However, full coverage for maternity cases is provided. Chronic diseases are not provided for except in acute exacerbations of the disease. All in all, the program is designed to furnish emergency service to the dependents of the Armed and Uniformed Services of this country. It is essentially a good program and will continue to be good for the medical profession as long as the profession maintains and deserves to maintain control of it.

Donald B. Koonce, M.D.

A.M.A. Plans New TV Aids for Medical Societies

Familiar nursery rhyme characters like "Humpty Dumpty" and "Jack and Jill" are teaming up with the medical profession to bring worthwhile health information to the American people over local television stations during 1957. The A.M.A.'s Bureau of Health Education currently is experimenting with animated filmed cartoons which feature the latest word on such aspects of health as safety, first aid, food preservation, immunization, cold prevention, nutrition and long life. Each 22-second sound TV film ends with the line: "This is a health message from Blank County Medical Society and the American Medical Association." A number of pilot placements have already been arranged in various parts of the country.

Next in line are general practice, with 8 per cent; obstetrics-gynecology, 6 per cent; psychiatry, dermatology and orthopaedics, about 5 per cent each; and urology, nearly 4 per cent.

Specialities with participation of less than 3 per cent each include eye, ear, nose and throat; radiology; anatomy; bacteriology; pathology; neurosurgery; anesthesia; cardiology; hematology; and neurology.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE

A number of faculty members of the U.N.C. School of Medicine participated in the annual meeting of the Southern Medical Association in Washington, D. C. from November 12 through 15. They are shown below in the order of the day they appeared on the program.

Tuesday, November 13

Dr. Doris C. Grosskreutz, assistant professor of surgery, and others presented a paper on "Trans-tracheal Analgesia: Its Place in Anesthesiology."

Dr. John Sessions, assistant professor of medicine, gave a paper on "Potassium Depletion with Renal and Disfunction Resulting in Habitual Use of Laxatives."

Dr. Robert Ross, professor and head of the Department of Obstetrics and Gynecology, served as chairman of the Section on Obstetrics Tuesday and Wednesday, November 13 and 14.

"The Result of Cataract Extraction Following Filtering Operations" was the subject of a paper by Dr. Samuel D. McPherson, Jr. The paper was delivered in conjunction with Dr. George W. Fisher of Durham. Dr. McPherson is clinical associate professor of surgery.

"The Diagnostic Accuracy of Plain Films in Bronchiectasis" was the subject of a paper by Dr. William H. Sprunt III, associate professor of Radiology.

Wednesday, November 14

Dr. Joseph M. Hitch, clinical associate professor of medicine discussed a paper on "Hydroxyzine Dihydrochloride Catarax" by Dr. Harry M. Robinson, Jr. and Dr. John F. Strahan, both of Baltimore, Maryland.

"Furantin in Urinary Tract Infections: Long Term Results" was the topic of a paper by Drs. Louis C. Roberts and Jack Hughes, both clinical instructors in surgery. This paper was presented with Dr. W. M. Coppridge of Durham.

Thursday, November 15

Drs. Claude A. Tait and Norman O. Reese, residents in anesthesiology, gave a paper on "A Comparative Study of Local Anesthetic Drugs with Specific Reference to Tissue Irritancy." Dr. David Davis, professor of surgery collaborated in preparing the paper.

Dr. Grosskreutz discussed a paper delivered by

Drs. D. L. Crandell and W. G. Page of Winston-Salem on "The Comatose Patient."

Dr. Thomas W. Farmer, professor of neurological medicine, served as a member of a panel that discussed "Common Neurological Problems, Recent Advances in Their Interpretation and Management." Dr. Farmer's field was epilepsy.

Dr. Nathan A. Womack, professor and head of the Department of Surgery, and Dr. Robert Zeppa, resident, gave a paper on "Carcinoma of the Gall Bladder: Attempt at Experimental Induction."

Dr. Warfield Garson, research professor and head of the Department of Experimental Medicine, School of Public Health, spoke on "Treponemal Test for Syphilis."

Two scientific exhibits were arranged at the meeting by University of North Carolina faculty members.

Dr. Hitch prepared an exhibit on "The Uses of Liquefied Gases in the Treatment of Skin Disorders."

Drs. Roberts and Hughes and Dr. Virgil I. Mann of the Department of Geology had an exhibit on "Analysis of Urinary Calculi by Optical Crystallography."

* * *

Of the 117 students entering the three medical schools of North Carolina in the fall of 1955, 65 students or 56 per cent of the students enrolled at the University of North Carolina School of Medicine.

These facts were brought out in a recent report by the Council on Medical Education and Hospitals of the American Medical Association.

A total of 150 North Carolina residents began the study of medicine. These 65 students who entered the University of North Carolina School of Medicine represented 43 per cent of the total state residents who entered medical school.

Of the 150 North Carolina students entering medical school last year, a total of 33 enrolled in out-of-state schools.

* * *

Approximately 70 invited participants throughout the United States, England, and Canada attended the opening sessions of the Ross Laboratory Pediatric Research Conference at the University of North Carolina School of Medicine on November 8.

The conference was held under the auspices of the Departments of Pediatrics of the Schools of Medicine of the University of North Carolina, Duke University, and the Bowman Gray School of Medicine.

The first two session of the conference were held at the University of North Carolina School of Medicine, with the final sessions being held at the Duke University School of Medicine on November 9.

Honorary chairman of the conference was Dr.

Grover F. Powers, emeritus professor Department of Pediatrics of Yale University.

The chairman of the conference was Dr. Edward C. Curnen of the University of North Carolina. Co-chairmen were Dr. Jerome S. Harris of Duke and Dr. Weston M. Kelsey of the Bowman Gray School of Medicine.

* * *

Dr. William P. Richardson, assistant dean of continuation education, has announced plans for postgraduate medical courses in the First District and Greenville for January, February and March.

The First District program will meet alternately in Ahoskie, Edenton, and Elizabeth City on Wednesday afternoons and evenings beginning January 23. Dr. L. P. Williams is chairman of the planning committee for the meetings at Edenton, with Dr. Dan P. Boyette at Ahoskie, and Dr. Zack D. Owens at Elizabeth City. The Edenton meetings are tentatively scheduled to be held at the Nurses' Home of the Chowan Hospital. The Ahoskie meeting will be at the Nurses' Home of the Roanoke-Chowan Hospital, and the Elizabeth City Programs will be held at the Camden Yacht Club.

The Greenville program will meet at the Greenville Golf and Country Club on Thursday afternoons and evenings beginning January 24. Dr. John L. Watters is chairman of the planning committee for the Greenville meetings.

* * *

Dr. William P. Richardson has announced tentative plans for the Fourth Annual Seminar on Occupational Health to be held at the School of Medicine on February 21 and 22. The complete program for this seminar will be announced at a later date.

* * *

Three senior research fellowships totaling \$164,000 have been awarded the University of North Carolina by the National Institutes of Health of the U. S. Public Health Service.

Dr. W. Reece Berryhill, Dean of the University of North Carolina School of Medicine, was notified of the awards recently. The funds are to be used to support the teaching of the basic sciences to medical and dental students.

The three fellowships are for a five-year period and are renewable at the end of that time. The money will be used for salaries and research.

The request for the fellowships was a joint one from the University of North Carolina Schools of Medicine and Dentistry. The School of Medicine teaches basic science courses to dental students. The grants become effective January 1, 1957.

The three named for the awards are Dr. R. D. Langdell, assistant professor of pathology, now on active duty as Research Officer at the Walter Reed Army Hospital Institute of Research; Dr. Billy Baggett, now instructor of chemistry at Har-

vard Medical School and assistant in medicine at the Biochemical Research Laboratory of the Massachusetts General Hospital, Boston; and Dr. Ira Fowler, assistant professor of anatomy.

* * *

Dr. Ernest Craige, associate professor of medicine, spoke before a meeting of the American Clinical Climatological Association at Skytop, Pennsylvania, on November 3. Dr. Craige's subject was "Phonocardiographic Studies in Mitral Stenosis."

* * *

Rare medical books and the history of medicine were presented to TV audiences over WUNC-TV, Channel 4, Friday, November 23.

This was the third in the current series of "Project Health" programs staged by the University of North Carolina Division of Health Affairs.

This is the second year that the series has been presented. Last year it was considered one of the most popular programs to originate at the Chapel Hill studio.

The title of the show was "The Storehouse of Medical Knowledge." It showed how the medical library of the Division of Health Affairs is operated and used. The program originated live from the Division of Health Affairs library in the Clinic Building of the School of Medicine.

* * *

Dr. John Dewey Dorsett of the Department of Medicine of the University of North Carolina School of Medicine recently presented a paper before the Annual Scientific Sessions of the American Heart Association meeting in Cincinnati.

The title of the paper was "A Critical Evaluation of Drug Therapy in Hypertension."

The paper was prepared by Dr. Dorsett, Dr. James E. Woods, Dr. Kerr White and Dr. Rueben Hill, all of the University of North Carolina faculty.

* * *

The Obstetrics-Gynecology Travel Club of the Medical College of Virginia visited the University of North Carolina campus on November 23. Their host for the one-day meeting was the Department of Obstetrics and Gynecology.

MECKLENBURG COUNTY CHAPTER OF THE NORTH CAROLINA ACADEMY OF GENERAL PRACTICE

The Mecklenburg County Chapter of the North Academy of General Practice sponsored a symposium on Abdominal Conditions in Charlotte, November 8. Dr. Coy C. Carpenter, dean of the Bowman Gray School of Medicine of Wake Forest College, was moderator of the morning session, and Dr. W. P. Richardson, assistant dean for Continuation Education, University of North Carolina

School of Medicine, was moderator for the afternoon session. Speakers included: Drs. J. P. Nesselrod, Northwestern University; Paul S. Rhoads, Northwestern University; Orvar Swenson, Tufts University School of Medicine; N. Frederick Hickman, University of Utah School of Medicine; Lewis I. Post, Tulane University School of Medicine; and Frederic D. Zeman, Columbia University College of Physicians and Surgeons.

Dr. John P. Harloe is president of the chapter.

NORTH CAROLINA CHAPTER, AMERICAN COLLEGE OF SURGEONS

The first annual meeting of the North Carolina Chapter of the American College of Surgeons will meet at 11:00 a.m., in the amphitheater of the engineering building at Duke University, Saturday, January 5, 1957. From 8:00 a.m. until 11:00 a.m., both Duke and Watts Hospitals will have their operating viewing stands open to the members of the chapter. Following a luncheon in the ball room of the student's union of Duke, the business session will begin at 2:30 p.m., with the president of the chapter, Dr. William H. Sprunt of Winston-Salem, presiding. There will be a reception of all members and their wives at the Hope Valley Country Club from 5:00 to 6:30 p.m.

NORTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS

The Board of Medical Examiners of the State of North Carolina will meet on January 14, 1957, at 9 a.m. at the Barringer Hotel, Charlotte, at which time applicants for licensure by endorsement of credentials will be interviewed.

RANDOLPH COUNTY MEDICAL SOCIETY

The Randolph County Medical Society met November 26, at the Randolph Hospital in Asheboro for their annual meeting.

Officers for 1957 were elected as follows: Hugh Fitzpatrick III, M.D., president; John Cochran, M.D., vice president; Willis H. Fowle III, secretary-treasurer.

ROBESON COUNTY MEDICAL SOCIETY

The Robeson County Medical Society held its monthly meeting November 5, at the Lorraine Hotel, Lumberton. The scientific program was a Clinical Pathological Conference presented by Dr. Dan Donovan, Department of Internal Medicine, and discussed by Dr. George Penick, Department of Pathology, University of North Carolina Medical School, Chapel Hill.

EDGECOMBE-NASH MEDICAL SOCIETY

The November meeting of the Edgcombe-Nash Medical Society was held in Tarboro at the Country Club on November 14. Dr. Raymond Adams, neurologist at the Medical College of Virginia, spoke on "The Aspects of Vascular Disease in the Central Nervous System."

FORSYTH COUNTY MEDICAL SOCIETY

The Forsyth County Medical Society and Bar Association met jointly on Tuesday, November 13, at the Robert E. Lee Hotel in Winston-Salem. A panel discussion on Medical and Legal and Public Relations was led by Dr. Frank Mayfield of Cincinnati, Ohio.

NEWS NOTES

Dr. S. Booker Dillard has announced the opening of his office for the practice of dermatology at 1012 Kings Drive, Charlotte.

* * *

Dr. Francis A. Stewart has opened office for the general practice of medicine at 2206 Patterson Avenue in Winston-Salem.

STUART MCGUIRE LECTURE SERIES AND SYMPOSIUM

Dr. Andre F. Cournand, professor of medicine, Columbia University College of Physicians and Surgeons, will deliver the twenty-eighth annual Stuart McGuire Lectures at the Medical College of Virginia in Richmond on January 23 and 24 at 8:00 p.m. On January 23 he will speak on "Validity and Values of Methods for the Study of the Dynamics of the Circulation in Relation to Cardiac Surgery," and on January 24 his subject will be "Control of the Pulmonary Circulation in Man."

The lectures will be given in conjunction with a symposium on cardiology and cardiac surgery to be held January 24 and 25. All lectures will be held in Baruch Auditorium of the Egyptian Building at the Medical College of Virginia.

There is no charge for the McGuire lectures themselves. There will be a charge of \$5.00 for the symposium, except to faculty members of the Medical College of Virginia and the Medical Division of the University of Virginia, medical students, and house officers of any hospital.

SOUTHERN REGIONAL EDUCATIONAL BOARD

Dr. Wilfred Bloomberg, Boston psychiatrist, has been selected to head the South's Regional Program in Mental Health Training and Research, conducted by the Southern Regional Education Board in Atlanta.

Dr. Bloomberg, who is chief, Psychiatry and Neurology Service, Veterans' Administration Hospital in Boston, will assume his duties officially on January 1, 1957.

NEWS NOTES FROM THE AMERICAN MEDICAL ASSOCIATION

A.M.A. Schedules "Nomenclature" Institutes in 1957

Plans have been announced by the American Medical Association to conduct two—and possibly three—short courses on the use of the **Standard Nomenclature of Diseases and Operations** during 1957. The first Institute will be held March 11-13 in Roanoke, Virginia, and the second August 5-7 in San Francisco. A third session probably will be scheduled in the fall. All of these three-day meetings are conducted by the A.M.A. as a special service to medical record librarians and others using the Nomenclature in the hospital, doctor's office or medical clinic.

Registration for each session is limited to the first 100 applicants and is not restricted to registered medical record librarians. Anyone contemplating the installation of the system or already using it and employed as a clinic clerk, doctor's secretary or receptionist, nurse or physician may attend. Tuition is free. Applications should be sent to Mrs. Hayden at A.M.A. Headquarters, Chicago.

Nation to Observe "Medical Education Week" In April

Attention of the nation will be focused on the achievements of U. S. medical schools during Medical Education Week, April 21-27. Sponsors of the Week, whose representatives met recently to develop program plans for national and local participation, are the Association of American Medical Colleges, the American Medical Association, the Student American Medical Association, the Woman's Auxiliary to the A.M.A., the American Medical Education Foundation, and the National Fund for Medical Education. Each of the sponsoring organizations is preparing suggested activity formats for state and county medical societies, medical schools and allied groups. These materials will be distributed early in January.

A.M.A. Studies Uniform Chemical Labeling Law

A program to protect the public from the dangers of mislabeled household and commercial chemicals recently was launched by the American Medical Association. Through its Committee on Toxicology, the A.M.A. is gathering information on existing state labeling regulations with the idea of developing model legislation on the precautionary labeling of various chemicals—such as paints and paint removers, ^{CHARLES} and cooking fuels, household polishers, ^{...} and laundering items—which are not ^{...} regulated. The end result would serve as a guide for writing uniform regulations requiring labels to show information on the product's contents, its possible dangers, directions for safe use, and first aid instructions.

Bernard E. Conley, Ph.D., committee secretary, reports that there are at least a quarter of a million different trade-name substances now on the market. Without proper labeling, both physicians and the public may be uninformed about harmful materials these products contain and the ways of treating poisonings from them.

Other organizations, including the American Academy of Pediatrics, American Public Health Association, American Pharmaceutical Association, National Safety Council, leading trade associations, and various state and national governmental regulatory agencies are being consulted on this problem and its solution.

A.M.A. Develops Radio Series on Surgery

The drama of modern surgery will be highlighted in a new series of radio transcriptions which the American Medical Association currently is preparing for use over local stations. The general public will be able to hear on-the-spot descriptions of actual surgical procedures performed by eminent surgeons in 13 different areas, such as abdominal, brain or chest surgery. While performing a regular operation, the surgeon will comment on his movements in terms which the average person will understand. Afterwards, the doctor will be interviewed on new developments in his special field.

This series, a replacement for one produced a few years ago, is being prepared by the Bureau of Health Education in consultation with the officers of the A.M.A. Section on Surgery. The 13-program series will be available for placement on radio stations by local medical societies about March 1.

A.M.A. Rural Health Meeting Set for March

"Together We Build" will be the theme of the A.M.A.'s Twelfth National Conference on Rural Health to be held March 7-9 at the Brown Hotel, Louisville, Kentucky. Principal subjects to be discussed include: The need for frequent and thorough physical examinations; the impact of modern living; rural economics in relation to health, and the migrant labor problem. Time for discussion from the floor is being allotted. Sponsored by the Council on Rural Health, this year's Conference will begin at 10 a.m. Thursday, March 7, and wind up at noon on Saturday.

A.M.A. Publishes "Today's Health" Index

A boon for physicians and their wives who from time to time are called upon to give health talks before nonmedical groups is the new **Cumulative Index to Today's Health** magazine, published by the American Medical Association. During the period from January, 1950, through December, 1955, more than 1,475 articles appeared in **Today's Health**. These articles now have been classified under 33 headings ranging from athletics to vacation and leisure. This valuable reference guide may be purchased from the Order Department for 50 cents per copy.

A.M.A. Congress Stresses Health on the Job

Safeguarding the worker's health will be the chief consideration of representatives of labor, management, government, and the medical profession at the seventeenth annual Congress on Industrial Health to be held February 4-6 at the Biltmore Hotel, Los Angeles. Sponsored by the A.M.A.'s Council on Industrial Health, the Congress is open to all physicians, nurses, industrial hygienists, engineers, and others interested in occupational health.

A special session on "Vision in Industry" will be presented Monday afternoon, February 4, and Tuesday morning, February 5, in cooperation with the National Society for the Prevention of Blindness.

Advance reservations should be made for these tours, since space is limited. Further information may be secured from the Council.

A.M.E.F. State Chairmen to Meet January 27

The 1957 fund drive of the American Medical Education Foundation for the nation's medical schools will officially open with a meeting for state chairmen on Sunday, January 27, at the Drake Hotel, Chicago. Emphasis at this sixth annual meeting will be on the exchange of ideas and the formation of suggested developments for the A.M.E.F. New work kits will be distributed to state chairmen along with other materials which will be available to county chairmen and committeemen. Each state may send one delegate although any physicians interested in this effort are more than welcome to attend.

HARVARD SCHOOL OF PUBLIC HEALTH

The Harvard School of Public Health takes pleasure in announcing its scholarship program for 1957-1958.

This scholarship program, inaugurated in 1954-1955, is designed to encourage graduates in medicine, dentistry, veterinary medicine, public health nursing, and other health specialties to further their education or seek careers in the field of public health and preventive medicine.

UNITED CEREBRAL PALSY

Dr. Louis B. Flexner, professor of anatomy and chairman of the Department of Anatomy at the University of Pennsylvania School of Medicine, Philadelphia, is the 1956 recipient of the United Cerebral Palsy—Max Weinstein Award.

The award, consisting of \$1,000 and a plaque, was presented to Dr. Flexner at the seventh annual convention of United Cerebral Palsy Associations by Dr. H. Houston Merritt of Columbia University, who is Chairman of the UCP Medical-Professional Advisory Board.

AMERICAN COLLEGE OF SURGEONS

An intensive course on fractures and other trauma will be offered to all interested members of the medical profession by the Chicago Regional Committee on Trauma of the American College of Surgeons. The course will be held for three and one-half days, from April 10 to 13, 1957, at the John B. Murphy Auditorium, 50 East Erie Street, Chicago.

REHABILITATION CENTER INSTITUTE

The Conference of Rehabilitation Centers, Inc., has announced an Institute on Rehabilitation Center Planning to be held at the Morrison Hotel in Chicago from February 25 through March 1, 1957. The Institute will be open to all persons interested in the establishment, expansion, or improvement of comprehensive rehabilitation facilities, and is being conducted by the Conference under a training contract with the U. S. Office of Vocational Rehabilitation.

The faculty for the Institute will be composed of top professional center personnel from this country and from Canada. Major addresses will be delivered by outstanding national rehabilitation authorities, and a staff of consultants from related fields will also participate.

Inquiries concerning the Institute should be addressed to the Division of Special Projects, Conference of Rehabilitation Centers, Inc., 5 Franklin Avenue, Saranac Lake, New York.

THE JOHN AND MARY R. MARKLE FOUNDATION

The Markle Foundation has announced that it will continue for the tenth year its program of five-year grants for young medical school faculty members seeking careers in academic medicine. The fund's Grants for Scholars in Medical Science were first offered in 1948 to give academic security and financial help to selected teachers and investigators. During the nine years of the program a total of \$5,320,000 has been appropriated toward the support of 181 doctors in 69 medical schools in the United States and Canada.

John M. Russell, executive director and vice president, has reviewed the program in the annual report of the foundation, issued recently. All but four of the Scholars "are active in academic medicine and ~~are~~ ^{are} doing their part to improve teaching and ~~res~~ ^{are} Wilfred medical science."

in selected

INTERNATIONAL COLLEGE OF SURGEONS

A \$1,000 contribution to aid Hungarian refugees in Austria was called November 18 by the International College of Surgeons following the receipt of an appealing letter from its Austrian Chapter, with offices in Vienna.

ACADEMY OF MEDICINE OF CINCINNATI

The Academy of Medicine of Cincinnati will hold its One Hundredth Birthday Party, February 27 through March 5, 1957. In observance of the occasion, a Health Museum and Exposition will be established in Cincinnati's spacious and historic Music Hall. One hundred and seventy-five health and scientific exhibits, representing medicine, hospitals, research centers, public health, nursing, pharmacy and industry will be displayed in the north and south halls. Notable among these exhibits and occupying some 4,000 square feet of space, will be an atomic energy exhibit from the American Museum of Atomic Energy entitled "Atoms for Peace."

Dr. Paul D. White and Dr. Walter Alvarez, noted medical scientists and authors, will be among the distinguished guest speakers.

The Centennial Convocation will be held on the last night of the Exposition, March 5, 1957. The Convocation address will be given by Sir Edward Appleton, Nobel Laureate, Edinburgh, Scotland, and civic leaders, officials of both the American and State Medical Associations, and Government dignitaries will take part in the elaborate ceremonies.

(Bulletin Board continued on page 590)

BOOK REVIEWS

Management of Addictions. Edited by Edward Podolsky, M.D. 413 pages. Price, \$7.50. New York: Philosophical Library, 1955.

This book is a collection of 35 papers on addictions of various types. It is divided into two parts—Part One, "Alcoholic Addiction," and Part Two, "Drug Addiction." All these articles have been previously published in various journals, but one cannot find the date or the name of the publications in which they originally appeared. It is obvious from the contents, however, that the majority were published several years ago. For example, in the chapter entitled, "A Clinical Evaluation of Tetraethyluramdisulphide in the Treatment of Problem Drinkers" appears the statement: "This drug is still classified as a 'new drug' under the Federal Food and Drug Act and is not yet available for prescription use, since the indications, contraindications, and complications of the medication have not yet been definitely established." Of course this particular drug has been available for prescription use for about five years.

Several of the articles pertaining to alcoholism stress the theory that alcoholism is either a "genotrophic disease" or a disease of "nutritional deficiency resulting from inherited peculiarities in the chemistry of metabolism." Other papers stress hypoadrenocorticism as a cause of alcoholism or drug addiction, and adrenal cortical extract is advocated for the treatment of both conditions. The aversion condition reflex method of therapy is reported with good results, but follow-up over a period of time is not adequate.

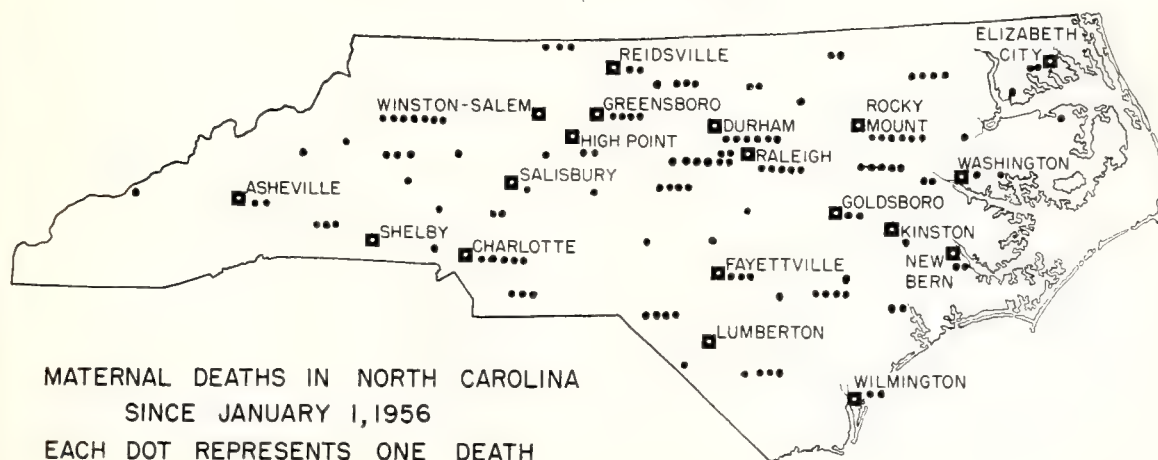
Unfortunately too many theories of the theories concerning the causes of alcoholism stress the remote possibility of physiologic factors, and not enough stress the psychologic factors in both cause and treatment. Also, the book is too repetitious.

Other papers give good information concerning

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the treatment of post-intoxication states and the general problem of alcoholism. None of the so-called tranquilizing drugs are discussed, however.

The papers on drug addiction deal mainly with opiates, although some of the barbiturates, benzodrine, and a few other drugs are mentioned. There are some good papers dealing with the hospital treatment of the addict, group psychotherapy, and some generalities concerning drugs. No adequate discussion of withdrawal therapy is presented.

Generally this volume is only a repetition of the more widely used methods of treatment of the past few years. Many papers are outdated, and others offer theories of questionable value. To a general practitioner it may be confusing. The book has a questionable value as a source of reference for a practitioner of medicine. Its value as a teaching tool is somewhat better.

Textbook of Medical Physiology. By Arthur C. Guyton, M.D. 1,030 pages, with illustrations. Price, \$13.50. Philadelphia and London: W. B. Saunders and Company, 1956.

Rapid expansion of medical knowledge has brought with it a fragmentation of medical literature. Sir William Osler could carry his text through many editions with little outside help, but even short contributions to the modern literature may require several co-authors. Dr. Arthur C. Guyton has essayed to check this trend by writing his own "Textbook of Medical Physiology." His book is an excellent example of the benefits and shortcomings of such a method.

The author writes well and chooses exemplary illustrations; his learning is wide and enviable. Yet his effort seems to this reviewer to fall short of its purpose, so admirably stated in the preface. The defects are not so much in the field of physiology as in the discussion of the application of this knowledge to clinical medicine.

For example, an accurate description of acid base balance is followed throughout the text by the assumption that cation is base and anion is acid. It may be obvious to many that the release of chloride from ammonium chloride causes acidosis, but not to this reviewer. Also the treatment suggested for transfusion reaction is open to question. The real danger of overhydration of patients in such straits is not brought out, and the dangers during the diuretic phase of recovery from renal shutdown are not sufficiently emphasized. Likewise, it is highly doubtful that extracellular fluid sodium deficit alone kills the patient with Addison's disease. Certainly, also, one would expect coarctation of the aorta to be mentioned in the discussion of clinical hypertension. And finally, one cannot agree that respiratory alkalosis is rare;

the hyperventilation of anxiety is commonly productive of this disorder, and the "drawing spells" of this condition are well known to most practitioners, although the contributions to it of overbreathing and tetany less so.

The author is to be congratulated on a noble effort. It almost achieves its goal.

The Lung. Clinical Physiology and Pulmonary Function Tests. By Julius H. Comroe, Jr., Robert E. Forster, II, Arthur B. Dubois, William A. Briscoe, and Elizabeth Carlsen. 219 pages. Price, \$5.50. Chicago, Illinois: The Year Book Publishers, 1956.

The advantages of teamwork are well brought out in *The Lung, Clinical Physiology and Pulmonary Function Tests*. Here the aims of the authors are less expansive and, if anything, the promise of the preface is exceeded. The descriptions of pulmonary physiology are unsurpassed, while the figures can stand in many instances without references to text material. More complicated data are isolated in an appendix, and there is a most helpful section on clinical application of lung function tests.

This monograph cannot be too highly recommended to those interested in the field of lung function.

Handbook of Pediatric Medical Emergencies. By Adolph G. DeSanctias, M.D., and Charles Varga, M.D. 389 pages. Price, \$6.25. St. Louis: C. V. Mosby Company, 1956.

This well written book contains chapters on emergencies of the cardiovascular, metabolic, genitourinary, neurologic and respiratory systems, care of the premature infant, drowning, poisoning, miscellaneous emergencies, and pediatric procedures. It was prepared for members of the resident staff, and much of the text was rewritten for this second edition.

The book is a concise discussion, concerned primarily with therapy, and is a definite asset in the physician's library.

Paper Electrophoresis. (Ciba Foundation Symposium) Edited by G. E. Wolstenholme and Elaine C. P. Millar, 224 pages. Little Brown & Company, Boston, Massachusetts. 1956.

Electrophoresis in solid media has undergone a phenomenal development since 1949. More than 4,000 reports have been published in the literature and three volumes devoted to the technique are available. The popularity of the procedure has been due in part to the relatively inexpensive equipment and to the volume of individual determinations that could be made in a short time interval by a single

worker utilizing very small quantities of protein solution.

Many variables encountered in the use of the technique include factors which influence the mobility of proteins. Physical characteristics of the solid media, evaporation, temperature and pH changes during the course of the study, adsorption of the proteins, and chromatographic effects have all contributed to difficulties in measurements of mobility. Quantitative determinations of the individual components of a mixture of proteins have been difficult, owing to the above factors and such additional difficulties as variability in the binding of dyes by different proteins, glycoproteins, mucoproteins, lipoproteins, and other electrophoretically separable materials.

It was inevitable that so many investigators entering an unexplored field simultaneously should each develop his own technology with the aim of minimizing the effect of these variables. A very high proportion of the published reports on the subject of filter paper electrophoresis have dealt with methodology, and each investigator has been reasonably successful in developing techniques which gave reproducible results for his particular problem.

These techniques are functional primarily because they reproduce a variable factor to the same degree, but they do not permit a ready interchange of method from one problem to another. This situation has resulted in tremendous variations in apparatus design, reagents, and methods. The CIBA Foundation Symposium on this subject is therefore a most timely and welcome addition to the literature. Those who participated in the conference have been pioneers in the field, and the presentations on apparatus, general methods, and techniques are most welcome. The discussion of these subjects is enlightening, and should go far toward developing standard procedures for this important field.

The volume will have its greatest appeal to the investigator, but the subject matter is so ably presented that clinicians who may be called upon to interpret data obtained by this method will find the book most interesting and instructive.

Dictionary of Poisons. By Ibert and Eleanor Mellan. 150 pages. Price, \$4.75. New York: Philosophical Library, 1956.

Dictionary of Poisons is a fine lexicon for a forbidding night's entertainment. For those who are always eager to be there first with aid it should provide many potentialities for life-saving. For chair-bound connoisseurs of English detective fiction, it is well nigh a necessity. The incidence of poisoning in the England of country estates must be the highest of any country since the unification of Italy and also as alarming as that of brain tumors in daytime radio serials. Unhappily that England survives mainly in such fiction, done in, not by insidious potions and obscure toxins, but

by the bane of every man: taxes. Still the English medical practitioner in that society must have been the most astute of diagnosticians, since the initial symptoms following many poisons are so similar.

The Mellans' list of poisons is current, but it serves mainly as a scaffolding for pleasant writing about unpleasant agents. Decorum and the heritage of English manor propriety surely must have prevented a verbal pass at cantharidies, but many moderns might have appreciated a note about the crossing of paths of cocaine and Sigmund Freud (surgeons may substitute W.S. Halstead.)

There is one unfortunate typographical error in the section on Mandragora (mandrake). Instead of being exorcised, pain is "exercised by ancient remedies administered in an atmosphere of incantations, charms, and mysticism." "Running fits, St. Vitus dance, and galloping consumption" come to mind, but no "exercised" pain. But for those puzzled since English Lit in college by line two of John Donne's Song—"Get with child a mandrake root"—this same section offers the answer. Mandrake was considered to ease the pain of parturition and as an amulet to protect against sterility.

A few paragraphs were unfortunately retained after proofs. Aconite and strychnine certainly have no place outside research in modern medicine. The inclusion of the dramatic story of Wenckebach's discovery of the effects of quinine and quinidine in cardiac arrhythmia would have been more appropriate. The Universal Antidote is also freely prescribed before victims are rushed to the hospitals, yet its composition is not revealed. The authors made amends in classifying their poisons: after some they suggest that one "Call A Physician!"; after others, "Call A Physician Immediately!"

Still these are petty complaints. The only real one is the absence of illustrations. At Christmas the macabre sense of humor of Charles Adams cartoons could make a Dictionary of Poisons a real experience.

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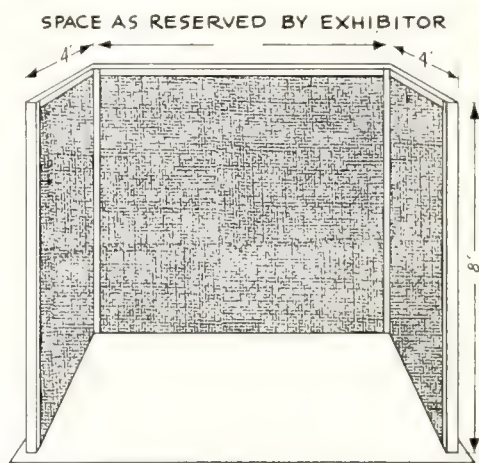
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BULLETIN BOARD

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COLLEGE OF MEDICAL EVANGELISTS

The 1957 Alumni Postgraduate Convention of the College of Medical Evangelists School of Medicine will be held in Los Angeles, March 10-14, according to Convention Chairman William M. Nethery, M.D.

Prefaced by two days of refresher courses, March 10 and 11, at the White Memorial Hospital on the College of Medical Evangelists Los Angeles campus, the three - day Scientific Assembly schedules a full round of lectures, panels, and scientific exhibits for visiting physicians. Geared primarily for the general practitioner, the meeting is open to all physicians regardless of their specialty or their school affiliation.

The American Academy of General Practice grants Category I credit to physicians registered for the refresher courses and informal postgraduate credit to medical men registered for the Scientific Assembly at the Biltmore Hotel.

Requests for information about the 1957 convention should be addressed to the Managing Director, Alumni Postgraduate Convention, 316 North Bailey Street, Los Angeles 33, California.

NATIONAL MEDICAL FOUNDATION FOR EYE CARE

Announcement was made 11-15-56 of the establishment of the National Medical Foundation for Eye Care, a non-profit scientific and educational institution, incorporated in New Jersey. The Foundation has been organized by ophthalmologists of the country to provide American ophthalmology with an agency to present to the public generally and to fellow physicians pertinent information on the care and treatment of the eyes.

Dr. Ralph O. Rychener of Memphis is president of the Foundation; Dr. Edwin Forbes Tait of Norristown, Pennsylvania, vice president, and Dr. Charles E. Jaeckle of East Orange, New Jersey, secretary-treasurer.

THE WORLD MEDICAL ASSOCIATION

Dr. Louis H. Bauer, Secretary General of The World Medical Association announced recently that he had wired the United Nations urging that body to insist on the administration of all needed aid to Hungary in its present tragic situation as a result of the ruthless butchery and strangling of the spirit of freedom.

The 53 national member associations, numbering more than 700,000 doctors were urged to send all possible medical and financial aid to the Hungarian people and doctors, through the International Red Cross Committee. The International Red Cross was notified that these steps had been taken.

PAN AMERICAN SANITARY BUREAU

Some 3,000,000 houses in the malarious areas of Mexico will be sprayed starting January 1, 1957, in the largest undertaking of its kind ever attempted in this hemisphere. This enormous enterprise is aimed at wiping out the mosquitoes which transmit malaria, thus effecting the eradication of this disease in Mexico.

DEPARTMENT OF THE ARMY

The Army's first formal residency training program in preventive medicine will begin July 1, 1957, according to an announcement by the Army Surgeon General's Office, Washington, D. C.

Regular Army Medical Corps Officers or qualified civilian physicians who accept commissions in the Regular Army are eligible to participate in this program. Interested civilian physicians may apply to The Surgeon General, Department of the Army, Washington 25, D. C., Attention: Chief, Personnel Division. Military personnel should apply through appropriate channels.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

The Public Health Service has announced today 44 five-year research fellowship awards to scientists in 29 universities and medical schools in 20 States, the District of Columbia, and Canada.

The awards are the first in a new Federal program designed to increase manpower for research in the basic medical sciences.

Recipients are scientists who have completed their doctor's degrees in biochemistry, pharmacology, physiology, microbiology, pathology, and the psychological sciences.

Those in North Carolina receiving awards are Drs. Sam Love, Department of Microbiology; and Harry M. Carpenter, Department of Pathology, Bowman Gray School of Medicine of Wake Forest College; Drs. Leo Pine, Department of Bacteriology, and William H. Knisely, Department of Anatomy, Duke University School of Medicine; and Drs. Robert D. Langdell, Department of Pathology; Billy Baggett, Department of Pharmacology; and Ira Fowler, Department of Anatomy, University of North Carolina School of Medicine.

Awards of more than \$700,000 for a four-year investigation into the causes of cerebral palsy and mental retardation have been made to Yale University School of Medicine and to Brown University, Dr. Leroy E. Burney, Surgeon General of the Public Health Service, announced recently.

Dr. Burney said these awards mark the beginning of a large coordinated research program which, during the next 10 to 20 years, will attempt to identify factors responsible for such disorders as cerebral palsy, mental retardation, blindness, and deafness.







